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Retro Review will give you some tips on how to find some machines for your collection, so grab your shovel- we'll be digging in a moment!

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An Excelent article by Alan Bairstow from commodore scene.

Retro Review

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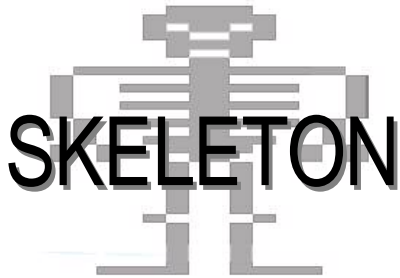
Emulator Writing

The continuation of the series of articles on The art of Emulator Writing, this issue we will take a look at the CPU.

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Skeleton

The folks over at www.atariage.com do a lot more than just run a website, they have a nice little sideline in publishing Atari games too! One of their latest offerings is Eric Ball's *Skeleton*, a maze-em-up for the Atari 2600.



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The Atari Files - Atari ExtenDOS

The atari section by James Alexander brings ExtenDOS to focus this Month

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Chat with Michael Batallina

Cloanto's Michael Batallina will be the feature of a chat in Amigazone.



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Collecting Microcomputers

A couple of weeks ago I received a mail from Michael telling me about his new book. Obviously I got excited about it, as it's not everyday that new literature appears covering my favourite subject! Immediately I ordered a copy, and a few days later a big envelope landed in my mailbox. Could it be...? YES! It was, it was the book I'd been waiting for...

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Metal Slug 4



It's not often that a new game comes out commercially for a console over 10 years old, but even since the demise of SNK, the renowned Metal Slug series received its latest update in 2002. Ian Gledhill takes a look at the new sequel - the fifth in the series - and finds out if it lives up to expectation....



EDITORIAL

OK, we admit it - we're late again! But needless to say better late than never...

Both Ian and I are very busy at the moment and Retro Review is our part-time project so priorities must take place and we can't live off Retro Review alone (well, maybe one day!).

Speaking of late arrivals- the Amiga One is here! Hurray! We were getting tired of coupons and promises, so let's see if the promise for OS4.0 is kept. I must admit I've been sceptical about the Amiga One, and still am a little - call it a trauma of Amiga promises- but since Amiga kept their promise let's see if the Hardware is really worth it! We (read: Ian) should be receiving our A1 before Christmas so we will give you a full review on it next issue.

Now for something completely different! We are still offering a campaign such that anyone who subscribes for 6 issues receive a 7th free, but now we're also saying that if somebody subscribes because of a reference from another subscriber, the referrer will also get a free issue! Check our webpage at <http://www.retroreview.com> for more info.

We have now online an automatic issue payment system! Just click on the "Buy it!" button and wait for the issue to arrive on your doorstep- great eh? We also now have an Auction section in our website, where you can follow your favourite retro computer's auctions and check Retro Reviews own auctions: so get surfing and make some bids!

On this issue due to the unusual amount of Amiga stuff taken by Michaels Battalinas chat at AmigaZone (BTW thanks Harv) we won't put our usual *Upgrading your Amiga* series article - instead that'll be next issue.

We're pleased to say that each issue we're getting more and more subscribers, especially now we've automated the paying option - however, we're still not as big as we'd like so remember - keep mentioning us to anyone who may be interested! Once we've reached a certain level we'll be able to run our first competition with some really good prizes!

Stay tuned!

Jorge Canelhas

Ian Gledhill

News and Highlights

Thunder in the Deep DEMO



First demo of Thunder in the Deep is here! Go to <http://www.petersplus.com> and grab it! Remember you'll need the V3 of Sprinters startup disk- see later in this issue for a review on the game demo...

What else is coming for the Sprinter ?

Hardly a week goes by that I don't bother Peters Plus for news about the Sprinter! This time I have more info to share with you...

Main Memory:

The Sprinter will be able to access 16 MB for sure! If we get lucky maybe 32 or 64 MB.

Video RAM:

The Sprinter will make full use of 512KB of video RAM.

16 Bit memory access to RAM:

We will be able to access memory in 16 bit mode providing more speed to the Sprinter.

HDD Access :

Hard disk access will be improved, giving us much faster disk access speed.

CDROM Access:

We will be able to access CDROM files through estex, (planned for January 2003) but before that Peters plus will publish LIBMAN.

New commands:

The new version of ESTEX will have more commands like MORE and TYPE.

Atari800Win PLUS

New Version Release !!!

A new version of Atari800win (3.1) was released, according to their site located at : http://atariarea.nostalgia.pl/PLus/index_us.htm

The emulator is based on Atari800 kernel 1.2.4 (with the latest changes) and has lots of new features like network games support (using Kaillera library), sector counter, emulation of XL/XE machines with memory capacity of from 16 KB to 1088 KB, large XEGS cartridges, MegaCart cartridges and switchable XEGS cartridges support, emulation of MultiJoy4 interface.

Thats sure worth a look...

ZX Format Issue 2 is Online



Rejoice all you ZX Spectrum fans, issue 2 of ZX F the Online ZX Spectrum magazine is out! In this number they look at the Sprinter, how to repair a +2 cassette deck and much more - see later in this *RR* a review of the magazine. Meanwhile download it from their site at : <http://www.zxf.cjb.net>

SpecNG 3 weeks in Paradise *Final* Release

The SpecNG crew (now at <http://www.specng.tk>) , just released "3 Weeks in Paradise" final version for Windows.

A great effort, a fine example of bringing old games to current hardware platforms, this game is freeware! Just go to their site and click the download button. This version features (among others), saving game at any time, better sound, graphics and an unbeatable price...



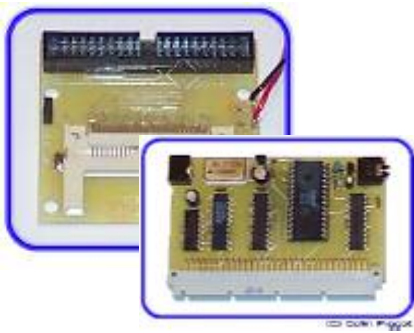
Len Bennet's new Sam Coupe Keyboard Membrane Replacements

We recently received a mail from Len Bennet- he has concluded his work on the new microswitch Sam Coupe keyboard replacements, keeping his low prices down (aprox 20 GBP). He managed after great effort and investment to make an affordable yet reliable Microswitched membrane replacement and he should be producing them and taking orders very soon.

bennett@kilblain.freemove.co.uk

Get in touch now !!!

Yet More Sam Stuff



Colin Pigot, has released 2 new hardware bits! It's always great to see new pieces of hardware for our old computers. The first is a compact flash interface that will work happily with BDOS, the second and most interesting is a SID interface! Lets get the SAM rocking like a C64.

Check it out at:

<http://www.quazar.clara.net/sam>

Sprinter on BeOS



Your best source for BeOS emulation ...

A Port of Shaos Sprint emulator was made for BeOS! Sprint Emulator is the best (also read *only*) emulator! It can run a good range of Sprinter apps, check :

<http://beemulated.net/computer/sprinter.phtml>



So you think you're pretty **HOT** at



Manic Miner?

Well Andrew Broad reckons he can beat you.. he's designed what must be the hardest Manic Miner edition ever. Called *Manic Miner - Ma Jolie*, he's releasing one fiendish level per week: at the moment he's done three rooms each of which is a hideously tricky level. To check it out you'll need to join the Manic Miner & Jet Set Willy Yahoo! group.

<http://groups.yahoo.com/group/manicminerandjetsetwilly>

Spectacular Spectaculator 4 screenshots!

Jonathan Needle - author of the Spectrum emulator *Spectaculator* - has released new screenshots of version 4! And mighty nice they look too! Could this be the Spectrum emulator to end all Spectrum emulators? What with all sorts of bells and whistles it could be - always need a black and white TV for that full Speccy nostalgia? Spectaculator could be what you need. Or maybe a genuine ZX Printer screendump, complete with dodgy colour->black and white algorithm? It's all there! Expect a review shortly!

<http://www.spectaculator.com>

When is a RetroReview site not a Retro Review site?

When it's a site dedicated to retro-gamer's own reviews of their favourite (or least favourite!) games.

The new site isn't a new magazine or anything, but simply a collection of reviews - nonetheless it has the potential to become an invaluable resource for anyone who collects old games and wants the best. So check it out, submit a review or ten and help make a purely retro collection of reviews!

You can find it on:

<http://www.rich316.btinternet.co.uk>



THUNDER IN THE DEEP

Game Preview by Retro Review

The first Thunder in the deep demo has been released! Will it be the killer game for the Sprinter computer ? Jorge Canelhas puts on his miner helmet and army boots, lifts his pick and starts digging...

Finally the much awaited demo is here- the first big game for the Sprinter (forgive me Sokoban and writers!). This demo consists of a 500KB download, that you unzip and run, nothing could be simpler.

As soon as I started the game I noticed the lack of sound- but then this is only a demo and is being reviewed as a demo so I won't be too hard on lacking features.

The game stars a ball with eyes and boots, armed with a pick, that goes around eating pieces of soil and catching gems (or other red precious stone - not essential to the plot!) while avoiding being

hurt by falling rocks or floating ghosts or any other monster. Quite a simple yet effective plot! As it's a demo, some features are sill missing, but just to give an idea, there is a suicide key! This gives



Dum-de-dum, munching some rubys I am..



Squiiiss, ah ah ah.

me the thought that i can get stuck somewhere in the middle of the game. The graphics are pretty and very attractive- full of colour and animation. I suspect that there will be some more baddies in the final release, but the ones already included are very well drawn and animated. Also very well drawn is our character, you must love the green army

booted ball picking around the rocks. Plus his deaths are pretty cool too- seeing him burn or get squished and killed by the baddies is a laugh at least for the 3 first times. One thing that's strange (and maybe its not a problem of the game but mine) is that the movement is both in up/down direction and left right as if our armybooted friend had the power to float (then again maybe he is from Krypton!). On the other hand the boulders have a will to fall that doesn't defy Newton's laws! The ambience could also be better- I hope a scrolling background is on the way! I dare not ask for parallax scrolling but the tip stays. For me to say anything about sound is very hard at the moment- there is not a single beep in all the demo! I guess the development crew is working on it- let's see if they do justice to all the other super cool eastern european tunes that have graced us in all those speccy demos



BARBECUE Time...

out there. All in all, bearing in mind that this is only a *demo* (I just can't state this enough in order not to pass false judgments), and it is a *good* demo, surely to keep us drooling while we wait for the final release that is due in Early 2003, graphics are good, but the background would be welcomed by us. Animation is quite good too, sound is missing so no comments about it here, the gameplay is good- I can't call it frenetic but the plot is here so I'd bet that in an advanced level



Super mega squishhhh !!!

when the final version arrives players will be trashing joysticks with this game! Oops, almost forgot to mention- the speed is also good! No jerky movements or anything, the game takes a little long to load even if executed from hard disk. I guess the dudes packed it well, not that it is a problem because the loading screen is just amazing! Keep up the good work guys - we sure are anxious to see the final version.

Thunder in the Deep is made by Deviants.

You can download it from petersplus website on <http://www.petersplus.com>.

Requirements:

- Sprinter Computer with Version 3 of BIOS.
- Disk Drive or HDD.
- Colour Monitor Recommended.

!!!NO WE DO NOT RATE DEMOS!!!

Jorge Canelhas

Know a game ? Want to see it reviewed here ?
just mail us:

ideas@retroreview.com

We will look at it !!!



Spectrum computing today

When a magazine does a review on another magazine it's always taken to be a tricky situation because impartiality can be a little twisted. Even so Jorge Canelhas will give you all the most unbiased view possible!

ZX F Magazine Review

It seems in recent times a proliferation of magazines have appeared in the retro scene! That fact by itself is amazing, and it does mean that more people are interested in it, and better yet, more people are getting involved. I was browsing the web when i stumbled on this magazine, and it really is GOOD! It's well written, with good layout and good contents - and the price? FREE! What better deal can you get? ZX F magazine (see <http://www.zxf.cjb.net>) is produced by Colin Woodcock and is distributed in PDF files. It's all in colour and is laid out so you can print it yourself. Not surprisingly, the contents of the magazine are (as the name clearly states) focused on the ZX Spectrum and family, and the current issue (issue 2) has several good articles, spanning from +2 tape deck recovery to a Sprinter review, along with emulators and much more. It really is worth the download, so take a look and leave a kind comment on the site: enterprises like this deseve all our support!

Jorge Canelhas



Coming back to Sinclair?

ZX F Fact sheet

Web Site:
<http://www.zxf.cjb.net>
Number of pages:
36
Media:
PDF File

Our Opiniom:
GREAT, and FREE! GO GET IT !!!



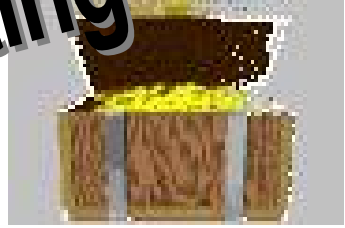
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Treasure Hunting



Collecting old computers isn't like collecting stickers: you need to get on the move if you want to find some rarities without spending large amounts of money. In this article *Jorge Canelhas* will guide you through the basics of old computer hunting.

It's part of the human nature to be a collector. Almost everybody collects something even if they don't think of themselves as collectors- everyone keeps a certain type of item more than others so computer collecting is as natural as collecting coins or anything else.

To begin with you need a few things to start your collection: space to keep the items, patience, some money (the more the better), and an understanding wife* (*if applicable!).

This piece focuses on collecting microcomputers: I'll leave huge unixes and similar to other people.

The hunting grounds.

There are several ways and places to get old computers: among the most common are online auctions, friends, classifieds, 2nd hand shops, public auctions, second hand fairs, IRC, etc (see boxout). Try to cover all of them- each has a different way of approach. I've been collecting computers for sometime now on a tight budget, and my collection isn't as big as I'd like, but for the money I've spent I'm doing pretty well. Read the *keeping your collection self sustained* boxout for more info.



An original Apple computer, one of the rarest kind of machines around, if you are lucky enough to get one it may be worth well over 2000 USD, see the news on issue 2.

Keep your sources under control- as soon as you find a new source visit it as often as possible! Second hand stores are especially suited for this as rotation of their products is very fast. Plus, if the employee knows you are a regular they will almost look for you! For example, I visit a second-hand shop near me almost every week- they usually didn't buy 8 bitters from people, but now whenever someone appears with one they call me to find out if I'm interested and if the price is fair! If I want it then I'll keep it.

Let the World Know.

The more people who know that you are a computer collector the better! I received a bunch of machines for free

Buying Retro Computers on Online Auctions

This is the most expensive way to get computers but also the way that will give you the largest number of items. This way doesn't require much time spent but it requires you to look very often at the same places. Prices here reflect the actual value of a computer (since the value of anything is exactly how much people are willing to pay for it) so they can get very high. My advice here is to begin scanning local auction sites- the fewer the people usually means that the prices will be loewer (and the number of machines available also). When you have your local sites covered go to the worldwide sites like eBay or Yahoo - here you'll almost certainly find what you are looking for. Look at them often, using the appropriate filter to see the new stuff (for instance on the RR webpage!). Sometimes you can get really low prices with Buy it Now! from people who don't know what they are selling. Dispite what the people say don't bid often, save your bid for when it is really going to make a difference, Also have a maxiimum price that you won't break! Its very easy to get in the rush of bidding and offer far more money than you were planning.To get an ideia of the prices of computers use Retro Review's Auction Watch list- it's the best help you can get here!

from friends who found out about my hobby- they said they had the computer gathering dust, so they gave it to me for a better use. A word about this subject, though – it is *not* polite to sell a computer that someone gave to you for your collection! Trading it for another is one thing, but I know I would be annoyed if I knew that a machine I donated was sold for profit!

What to Look for ?

So what should you look for? Using my experience I'd say: look for everything! Whether it be computers, consoles, peripherals (that often are worth more than the computer itself), try to get all the stuff in the best possible condition. MIB (Mint In Box) is the best possible option, but I know that that's not possible all the times. In my experience, collecting unboxed items is a hassle to organize in a way that your wife would approve of! On the other hand they are



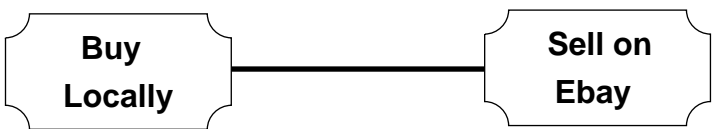
A Sinclair ZX80 computer, though overpriced for its rarity its one of the most wanted computers around, boxed items have reached over 300 GBP on Ebay, photo from HCM see link in picture, one of the best sites for retro computer collectors, if they dont have it then its VERY RARE INDEED.

A Dead Useful Computer

Pay attention to dead computers! Wherever you go, they are usually sold at very low prices, and sometimes they aren't even dead at all! In the worst case you still get some spares that may allow you to bring another one to life. It also pays to get dead but good looking computers, as in this business the looks count for a lot.

Keeping a self sustained collection

My computer collection is nearly self-sustained. What does this mean? It means I don't use my work income to buy other machines. The concept is quite simple and its execution even simpler- lets say you start with 50 Euro and you go to a second-hand store and find 2 ZX Spectrum +3 for 25 Euro each, what would you do? Buy one for your collection and leave the other? *Wrong!* buy them both! (Use Retro Review's Auction Watch list to figure actual values). You can then pick the best for your collection and sell the other on EBay for lets say 100 Euro. Simple eh? Well, easier said than done! Pay close attention to the article's condition, get an eBay account and start selling. eBay achieves the highest prices of all computer sources, so when you buy a machine in a newspaper classified you're almost certainly getting it for less than eBay price. In conclusion - buy and sell as often as possible! Trading is also a good choice, but usually the circuit is simple:



NEVER FORGET:

- > Pay Attention to other peoples feedback.
- > Keep your feedback as high as possible.
- > Try to mention P&P costs.
- > Use secure forms of payment.
- > NEVER send money.
- > Be Honest (cant stop saying this)

good to trade with other collectors, especially local computers (i.e. computers built in your home country).

Used Fairs and Garage Sales

Ok, I admit it: I've never ever seen a Garage sale. I've heard of them, read about them, but I'm starting to believe they are some kind of urban legend, at least in Portugal. Anyway, here where I live we have a very well known used (and quite possibly stolen) goods fair, so



A SORD M5 computer this was a japanese machine, machineslike this are very hard to find in Europe and reach very high prices on Online Auctions.

Tips on fixing stuff

Collecting computers isn't just stocking them- often you must repair them! Be sure to know how to handle a soldering iron- I'm going to pass you some tips that can be used on most of machines out there but for more detailed information, browse the net for newsgroups or faqs on the particular machine you are repairing.

- 1) Check all socketed ICs, a very common fault in old computers is chips jumping out of their sockets because of temperature variation. Often completely 'dead' computers can be fixed just by pushing the chips down on their sockets.
- 2) Broken cables on the power supply: usually old computers are not well kept: people tend to roll the power cables on the power supply, breaking the core near the power supply or the plugs.
- 3) Burnt chips- look for visual damage on the board, burned places, broken tracks etc.
- 4) Bad contacts- these are a very common source of trouble too. If you think that there is any loose contact in a moving part (switches, connectors) use deoxidating spray on it (use it only in the right amount).
- 5) RAM chips are very often responsible for a machine's misbehaviour. The trouble is that they are usually soldered into the board, so it's not just a plug and play task. The two common RAM chip problems are short circuits and open circuits. The first leaves the RAM location always at 1, the second always at 0. Checking for short circuits is simple, turn the machine on for a while and then with your finger, touch the chips one by one. If there is no other heat



Amiga 1200 motherboard, almost impossible to fix without proper tools, fortunately most retro computers aren't like this

source on the machine, all chips should be equally warm. If there is one that is hotter than the rest, replace it, as you can be almost sure that it is damaged. Searching for open circuits is tougher but also straight forward enough- the technique called piggy back chips is simple: get a chip equal to the one that you have on the board, then with the computer OFF, sit the chip on top of a chip on the board. Make sure all pins are touching in the same position, then turn on the machine. If the RAM chip you've put the new chip on top of was open then the problem should be now solved, and if that is the case replace the chip on the board with the one you piggy backed. This technique can be performed on as many chips as you want at the same time.

6) Bad keyboards! there are several kinds of keyboards on the market, but the real pain are the membrane ones. Membranes are fragile and often crack- to repair a not-too-damaged membrane use conductive paint, you can get it in most electronics shops.

We hope this gives you a head start, but always be sure to check the web for info on your particular problem!

Selling in On-line Auctions

Selling in on-line auctions is pretty straight-forward, but there are a couple of things you should bear in mind:

Before the auction:

- Test the machine, make sure it works.
- Clean it up! Appearance is crucial here.
- Make a clear description with as many photos as possible, people like photographs, that's a proven fact, and reflected by achieved prices.
- Add as much stuff as possible! A boxed computer is worth more than an unboxed one. Don't include too many peripherals: you'll usually get more by selling them alone.
- Use all the title space available, some people just read the title...
- Be honest! There is nothing worse than a dishonest seller.
- State the shipping costs whenever possible.

During the auction :

- Be helpful when people ask you questions.
- BE HONEST.

After the auction:

Even when you've been paid, the deal isn't over. People like supportive sellers. A supportive seller will almost certainly get a customer back.

most of the time I can find something useful there: maybe a ZX Spectrum, Atari or whatever, and usually at very low prices. Bear in mind that in most of these sales there is no way of testing the stuff, so assume that it does *not* work, and pay according to that. Bargaining with the seller usually works too, but don't push it! Usually you already have a good deal as it is. Don't look too interested on stuff as often sellers make prices at the time of sale. A guy with eyes wide open and drooling over an article will make the seller raise the price.

Look carefully not only for computer but also for peripherals. Many peripherals are more valuable than the machine itself and are much cheaper. Software is always a good idea, especially in cartridge form, as a lot of magnetic media just won't work any more.



Pay very close attention to whatever extras are included in the deal you are making, don't be afraid to ask the seller for games and peripherals, most of the time people have them and they just think you may not be interested, some times a good condition peripheral will worth much more than the original machine by itself, a typical example is on the commodore amiga range of computers



Several versions of ZX Spectrum the top left is a spanish version for the famous and most wanted 128, the last one disegned by Sinclair itself before being bought by amstrad, saometimes local versions of computers are worth a lot, here supply and demand rules, the fewest made the more they are worth.

Old computer shops

I never tried this myself with results but I know people who did and got great deals from it. Many older shops, i.e. 20 years or so old, might have surplus stock lying in some corner. Usually they will sell them very cheap and if you are really lucky they may even give it to you! Just make a tour of your local area and ask, it won't hurt!

Online Auctions

Buying in online auctions is a complex subject (see boxout for some tips). You can find almost everything there, but at a higher price than "in the wild" (i.e. old shops etc.). Simple rules apply, though: never bid what you can't pay, be honest, and look in several different places! Because it's such a complex matter, I've made a couple of boxouts: be sure to check them out.

Trading with others

As a computer collector I always fancy the good old trade with a fellow collector. This way I can get a good machine, providing my fellow collector is honest, and give out another machine I have to spare! In this case, don't be too worried about getting a good deal: you win some and you lose some, and maybe this deal would be better for him than for you, but next time it may be the other way around. There arent many tips I can give here except for the usual ones: be honest, and trade only with honest people..

To round it up...

Making a collection is more than doing business, for me at least, it's a passion. A great part of the joy of collecting is the hunt- that dream we have of finding something rare in a lost location like a car boot sale (mythical?!) or a 2nd hand shop. Sometimes it's not the item that gives you the biggest pleasure but the search, so get your hat and whip and go for the adventure of Retro Computer Hunting.

Jorge Canelhas

8 bit Commodore Today

By Allan Bairstow from Commodore Scene

First of all, a big hello to all you fellow retro fans.

I have been asked to jump straight in and let you all know what your Commodore 64/128 is doing in this new computer age and what place it has to still call itself a multimedia system. Its hard to describe the changes to the Commodore over the past 10 years or so. I have decided to describe my system set-up and what I do with it. I will then let you draw your own conclusions from that and if required, I will write more on a specific topic if you need to know more.

Okay then, picture one is a group shot of my main system. Underneath the Canon bubble colour printer is the C128D, what you can't see is the upgraded JiffyDOS

system chips and the 64k VDC RAM that have replaced the original Commodore items. JiffyDOS is present in all my Commodore stuff and allows me better and faster disk access whilst giving me 100% compatibility with all programs. Also in this shot (bottom right), is the Supra Express 56e modem which allows me to send and receive faxes, using geoFAX,



and is also used for e-mail and graphical web browsing using a program called TheWAVE. Nestling next to it is a little black box which allows me to use a standard fax machine as an A4 scanner. Picture two is a close up of the expansion units being used with my set-up. The tall slim unit is the SuperCPU and the unit behind it is the RAMLink, in the top of the RAMLink is the modem interface cartridge. Okay then, so



what do these do ? Well simply put, the SuperCPU is a processor accelerator which now makes the Commodore run at 20Mhz ! Also in the SuperCPU is 16Mb of system memory, this is used by programs such as GEOS, Wheels and WiNGS to run their applications at lightning speed. The RAMLink (my personal favourite peripheral) has 16Mb of internal RAM and a real-time clock. Think of the RAMLink as a disk drive but the programs are stored in RAM allowing them to be loaded in seconds rather than minutes. A back up

battery holds the data in the event of a power failure. A quick comparison is my GEOS system would take about 4 minutes to load up from floppy but on the RAMLink it only takes about 5 seconds ! Not bad eh ? As with most of the devices described here, they can emulate any drive from 1541 up to 1581 to remove any compatibility problems. The drives - (picture 3, left to right) - CD-ROM drive, FD2000 (top), Hard

Drive (bottom), 1581 (top) and 1541-II (bottom). The CD-ROM drive is used for retrieving .d64 images from CD and transferring them back to 1541 disks, it is also possible to play music CD's and in the near future it is hoped to be able to read and write to the CD directly in Commodore mode. The FD2000 drives are superb, they can use either 800k disks or 1.44Mb disks (the 1.44Mb disk are actually formatted to 1.6Mb). You can read PC disks should you need to (handy for transferring files), you



can also format disks and then partition them off into smaller sections, very handy. The hard drive currently has a 4Gb drive in it ! I will be upping this later this year to about 20Gb when the new HD-DOS chip becomes available, again, you can emulate any drive type or just partition it up into little bits - that is if you think 16Mb is a 'small' bit !!!! Last but not least I have a 1581 and 1541-II to make it easier for me when disks need transferring to a faster device.

With all this hardware, the power supplies were my main concern, most of you will know that they get hot - VERY hot - and I wanted something better. The CS-SuperPSU (picture 4) was born ! It powers up to 9 devices in total. Everything you see here is powered from one CS-SuperPSU, it also powers my second set up (picture 5) as well - at the same time !

Other items worth a mention are the mouse and the printing mechanism. The mouse is not only used to point your way through GEOS but it also has a real time clock built into it, this has to be the cheapest way of bringing a clock to your Commodore. The printer is a standard Canon colour BJC4100, it is connected via the geoCable. What makes it special is the fact that it can be made to print wonderful things from your c64/128 via some clever programming tools. Now, just imagine being able to print laser quality documents from a 9pin dot matrix printer - impossible ? Think again, with PPLQ it is possible and the results are absolutely outstanding when you use a bubble jet printer. Do you want to push the printing barrier further ? Then PP3 is for you, with this you can print using Postscript fonts and full 65,000million colour photo's, but for this type of printing you will need a colour postscript printer as well.



Well, thanks to Ian for letting me share my ramblings with you all. If anybody has any questions about who, where, how, why and what all this stuff is and does then please just ask. I also import the items mentioned above if you need any of them.

Allan Bairstow

e-mail - allan.bairstow@btinternet.com
<http://www.commodorescene.org.uk>

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D.I.Y. Emulation

Part 2 - a brain for the body...

So Frankenstein's monster is lying on the table and he needs a brain, and rather than use someone else's you'll make your own. But what goes on in that little black chip at the heart of your favourite 8-bit...? Ian Gledhill shows us the inner workings of the ubiquitous Zilog Z80A...

Last week we took a look at the graphics display of the computer, which is great, as long as you like looking at flashing blobs on the screen. If you want to do anything useful, however, our creation needs a brain... of course if you don't like the idea of writing your own CPU code, borrow someone else's! Marat Fayzullin has a freely available Z80 core, and there are others around.

A Nice simple(ish) CPU...

Of all the CPUs (Central Processor Units) out there, probably the simplest one is the Z80A, which is part of why it's so common. Some machines used the 6502, others used the 6809 or other similar incarnations, but about 75% probably used the trusty Z80A.

The first thing to remember about the CPU is not to be afraid of it - it may appear awfully clever when you're playing *Gauntlet* but in fact most CPUs can do only two things:

- change memory
- read in / write out to a port.

Memory accessing

Memory actually comprises two types of memory - that nice 64Kilobyte bank of

RAM where we store our program, and also the memory internal to the CPU, usually known as the *registers*. Our virtual Z80A has 12 registers: A,B,C,D,E,F,H,L,PC,SP,IX and IY. Thanks to the ingenuity of the chaps at Zilog, though, who made the Z80A, they can also be thought of as 16-bit words: AF, BC, DE, HL, PC, SP, IX, IY.

Now take a look at a Z80 instruction table, such as the one at www.geocities.com/SiliconValley/Peaks/3938/z80_home.htm

The first "Alphabetically sorted" link half way down, under "Basic Information (Instruction Set)" is a good place to start. Notice how much repetition there is - this is *good thing*. It means we can generalise our instructions.

Let's starting with the simplest. Under 'J' we find:

JP nn Unconditional Jump to nn
All this instruction does is change the Program Counter (that's the PC register, by the way) to the value nn. So if the Z80 is running code at \$1000, and our disassembly is:

```
1000          JP $2000
```

All we do is change our PC variable to \$2000. Our emulator executes the next code pointed to by PC, i.e. \$2000. There we have program control. OK, yes, it

sounds complicated. But all our CPU is doing is looking at \$1000, finding the instruction JP \$2000, and changing the appropriate register. Using this we can do not just JP nn, but also CALL (subroutine, i.e. GO SUB instead of GO TO), JR (Jump Relative), JP cc,nn (Jump to nn when condition cc is true) and everything. How do we get from our memory to JP \$2000 though? The opcode (operation code) for JP is C3. Therefore the RAM will hold:

Address	Memory
1000	C3 00 20 00 00 00 00 00

How about if we found the memory:

Address	Memory
1000	3C 20 FD 00 00 00 00 00

Run this through a disassembler and we get:

1000	INC A
1001	JR NZ,1000

How do we get to this?

3C is the opcode for INC A. It increments the value of the accumulator, which is the posh word for register A. A is an 8-bit value, so holds values from 0 to 255. If A=0 to start with, A will be increased to 1. At this point, we have a JR instruction, which means Jump Relative. The 'NZ' means *only* jump if the result of the previous instruction which affects flags is *not zero*. This would be a good time to introduce the second half of the AF register pair, the F register. All this register is used for is keeping track of results. It comprises 8 separate bits: S, Z, H, P, N, C and two officially unused ones, bit 3 and bit 5. The flag we're interested in is the Z flag (bit 7, for those who are interested). The INC A instruction affects the Z flag (we can see this on some of the tables from that website above) - this means that if INCing A gives A the value 0 - i.e. A was 255 before INCing - then the Z flag is set high. All the JR NZ instruction does

is look at the Z flag, and if it's low (i.e. it has not been set high) then it executes the JR, in other words returns the Program Counter to \$1000. The eagle-eyed among you will have noticed the JR command holds only two bytes of information - not enough for a memory address! This is because the address is held *relative to the current address*. Hence we have the opcodes "20 FD" - 20 for the JR NZ,r and FD which is 8-bit signed hex for -3. In other words

JR NZ,1000 is actually

JR NZ,-3

which means:

Test the zero flag.

Is it not set? If so, go back 3 locations.

If Z is set (i.e.A=0), carry on executing.

Again, this looks hairy, but all it is doing is:

INC A ; LET A=A+1. Set Z(ero) flag
; if A is now 0.

JR NZ,-3 ; If the Z flag was set, go
; back to the INC A
; instruction.

So, in C:

```
loop: A++;
      if (A==0) Z=1; else Z=0;
      if (Z==1) goto loop;
```

If this is seeming scary still, remember - if you can do this, you can do 99% of the CPU already.

So far our CPU can increment, change flags and allow flow control within the program - which is really all that it needs to do. From here, then, we must extrapolate the other instructions. For instance, from INC A we can get INC B, INC C, INC D etc. The only odd one out in the INC section is INC (HL), which simply takes the value HL and reads the value in the memory. In other words (in C!):

```
int HL; byte *number;
```

```
HL = RegisterH<<8 + RegisterL;
```

```
number = SpeccyMemoryAddress+HL;
```

```
•number++;
```

Now we've done INC (HL)! Of course we need to do the flags too: to do this, we look up the INC instruction on any of the tables showing flag affection (there's plenty on that webpage - like www.geocities.com/SiliconValley/Peaks/3938/z80href.txt) and see:

```

      S Z H P N C
INC r  * * * V 0 0

```

The key at the top of this page shows that the N flag and C(array) flag are zeroed, the P/V flag shows overflow (i.e. it's set high under certain circumstances - in this case when the register overflows from +127 to -128). The Half carry is also (re)set according to the result (in this case when the lower 4 bits are zero after incrementing). The Zero flag is set when r is incremented from -1 (\$FF) to 0, and the sign flag is set when r is negative (i.e. bit 7 is set).

Whether the flag is set or not depends on the instruction and the value, but as an example, we have INC A:

```

if (A & $0F == $0F)
    SetHalfCarry(1);      Set if necessary
else
    SetHalfCarry(0);      Otherwise reset
inc A;                    Increment A
if (A & $80 == $80)
    SetSign(1);          ; If -ve then set.
else
    SetSign(0);
if (A == $00)
    SetZero(1);          ; If zero then set
else
    SetZero(0);
if (A == $80)              ; if overflowed..
    SetPV(1);
else
    SetPV(0);
SetAddSub(0); ; It's an increment.
PC+=1;                    ; Next instruction....

```

Emulating a CPU is in fact very simple - do the task (in this case incrementing A), and then a series of tests. The trouble isn't in the mechanics of the CPU, it's in the legwork involved in doing it.

Let's take a slightly more complex instruction, now: PUSH HL.

PUSH is a stack command - it plonks the value HL into memory

pointed to by the SP register. In fact it can be broken into separate parts:

Reduce SP by 2

Put the value L into (SP)

Put the value H into (SP+1)

and Hey Presto, we have a working stack! This can done in C:

```

RegisterSP -= 2;
byte *stack = SpecMemoryAddress+SP;
*stack = RegisterL;
*(stack+1) = RegisterH;

```

Then we look at the flags affected - and Joy! they're not affected. The PUSH command is working! Notice that the L gets put into the stack memory first, then the H. This is because the Z80 is *little endian*. In other words, \$1234 is stored in memory as \$3412. i.e.

```

$1000    DC.b 00 01 02 03 04 05
$2000    LD HL,$1000
$2003    LD A,(HL)

```

results in A being set not to \$0001 but \$0100.

Now for a bit of bit shifting. RLC r is a nice instruction - Rotate Left Circular. The Z80 document above describes this as "m=m<-". A more detailed description on a larger document might show it to mean "Rotate the register left by one bit, copying the lost bit 7 into bit 0 and the Carry flag". So this is exactly what we do.. make a copy of bit 7, shift the bits left by one, and put the lost bit in bit 0, as well as the Carry flag. In other words....

```

OldBit7 = Register & $80;
Register = (Register << 1) & $FE;
Register += (OldBit7 >> 7);
if (OldBit7) SetCarry(1) else SetCarry(0);

```

As usual the Sign flag is set if the new bit 7 is set, and Z is set if the result is 0. The HalfCarry and Add/Sub flag are both reset to 0, and the P/V flag is set to the parity of the register.

The Parity...??

Don't worry - it's just another flag. The P/V flag has two purposes - overflow, and Parity. Overflow usually occurs

when the bottom nibble overflows into the top nibble (i.e. \$0D + \$03 = \$10 is an overflow). Parity on the other hand is the *number* of bits in the register. For instance, \$00 has a Parity Even, i.e. the P/V flag is Set. \$01 has a Parity Odd as it has one bit set.

No More Z80A! Please!!

For those of you still alive after reading all that, remember it's way out of the scope of this articlette to teach you how to code in Assembler. What we *have* tried to do is to break down the core elements of the CPU - if you can understand what's happening inside that black chip that keeps breaking down in old Spectrums, you can see that most of its functions are very, very simple. It's no light task to write a CPU emulator, but it's just the time it takes.

Of course the Z80 *is* simpler than many CPUs. The masochistic among you may like to try something rather more esoteric, in which case a nice little TMS9900 like in the TI-99/4A would be fun, complete with its rather minimalistic registers (all one of them). Another simple CPU though is the 6502 - in fact that chip is easier than the Z80 in many ways, but harder to program as it has fewer registers and less versatility, as well as being entirely 8 bit as opposed to the Z80's 16 bit register handling. The other problem with the 6502 is the machines running them are usually more complex too. When you're learning a CPU you don't want to have

to emulate VIC or a TIA too...

Of all the instructions that the Z80 can do, there's only two sets that can't be done exactly the way described in this article - IN and OUT. As far as the CPU is concerned they're like any other instruction - read or write a value, change flags if necessary etc. Both of these instructions are completely machine dependent, however - the CPU part of them is very simple, it's how they interface with the rest of the machine which is what makes them more complicated. As such to implement these you'll need to know more about the computer itself. That's where techie sites on the web come in handy! <http://www.worldofspectrum.org> has all the info you need for Spectrum emulation, particularly in the c.s.s. FAQ. It's also what we'll be looking at next week - after all, no matter how proud of your CPU you are, there's only so much fun you can have looking at a (C)1982 Sinclair Research Ltd message. Next month, then, we have sound, keyboard handling, tape handling .. maybe even the start of a co-processor or two (the AY-3-8912 or the PD765A disk controller anyone?)

Until then keep coding and good luck to anyone starting out their first complete emulator - it's not easy and it's not quick, but it's worth it....

Ian Gledhill

Important places to visit on the Web...

fms.komkon.org

Home of the very talented Marat Fayzullin - miss this page at your peril!!

www.worldofspectrum.org

Writing a Spectrum emulator would be impossible without this resource! Everything you need to know about the Z80 to write an emulator!

www.geocities.com/SiliconValley/Peaks/3938/z80_home.htm



The folks over at www.atariage.com do a lot more than just run a website, they have a nice little sideline in publishing Atari games too! One of their latest offerings is Eric Ball's *Skeleton*, a maze-em-up for the Atari 2600.

By all accounts, *Skeleton* is not Doom. Yes, you run around a 3D maze and shoot things, but any good retro gamer knows you don't need 360 degree rotation and fancy textures to make a good game, and this game illustrates that point nicely. In fact, the only graphics in the game are lines for the walls, and skeletons (although the walls do change colour as you get further!), but the game keeps you involved superbly.

The plot of the game is, unsurprisingly for the Atari 2600, rather simple: you're in a maze. You need to get out of said maze. As luck would have it, all you need to do to leave is shoot 10 skeletons. Per level. So, just 80 skeletons stand between you and freedom. No problem, except as you get further into the game (and presumably out of the labyrinth), the skeletons get tougher. A lot tougher. And faster, mustn't forget faster, as the beasties get

faster all the time. Plus, your trusty gun has a habit of missing the target completely (not that you're a bad aim, oh no!), so even a simple one-shot level 1 skelly can take a number of hits to take down.

So that's the game! But does it work? Oh yes... rather like 3D Monster Maze (check the ZX81 feature back in Issue 1 of *RR*) it's a great suspenseful game - with the added benefit of sound. Not just mono sound, either, but *stereo* sound! Of course normal Atari 2600s (or indeed Atari 7800s like I played the game on) can't do stereo sound, so you need a system which can do stereo sound. Knowing that not everyone (i.e. hardly anyone) has a stereo Atari, Eric's kindly added a skeleton sensor on the left difficulty switch - this way you know whether your quarry is to the left, right, fore or aft of you. What it doesn't tell you is how far away the undead fellow is - even mono sound can do that, and as the instruction manual (yes, they've printed a manual for it too!) proudly states, "Sound is critical for playing *Skeleton*".

The difficulty level of the game is excellent - it's open-ended enough that

Other new Atari games...

Skeleton isn't the only new Atari game from AtariAge - there's plenty more where that came from, and it's a growing number. Some of the games were previously only released at shows like the CGE, others are prototypes that were nearly finished. Others are just hacks, usually graphical hacks of games like *Space Invaders*, but some are rather more innovative, such as "Combat Rock" which plays The Clash's *Rock the Casbah* while you drive around shooting each other. Some are test carts, and there's even the *SynthCart* to let your Atari make music using keypad controllers!

if you want to play the hunter, get moving that joystick. Alternatively, those of a more nervous disposition can take it easier and find a nice corridor to camp in and wait for the victim. Because of this you can play a frantic leg-it-round-the-maze-firing-round-the-corner if you

getting faster....

Something the writer has succeeded in doing also is making the game believable, despite the limitations of the hardware. The graphics may look rather .. primitive when viewed on paper, but soon after playing, you can visualise the maze easily.



Hmm... no skeletons here. Looks like he's over ahead and to the left...

Visualising the pattern of the maze is rather harder, though - I've yet to find the edge.. I think. It's well designed enough that the maze feels very big, even though most of the action takes place in what is probably a rather small area. Certainly it feels small enough when you hear the loud footsteps of an approaching bad guy right behind you.

like. You want last long, probably, but you *can* do that. Best not to rely on that slightly rusty gun though, the fire rate isn't too good, and if you need to offload 8 shots into some vicious bag of bones you'll need to plan things a little better, especially as they're always

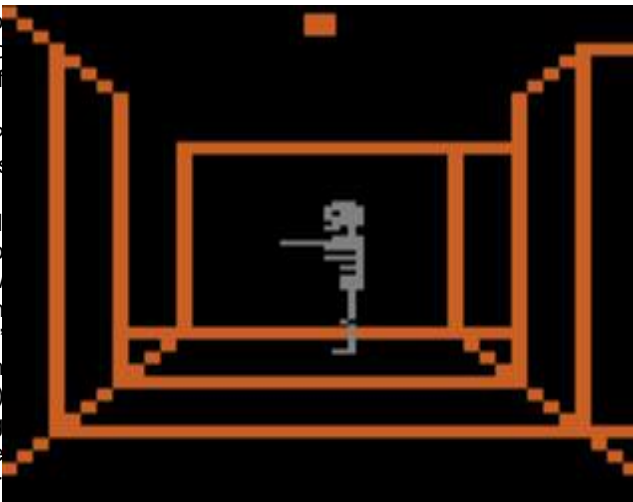
It'd be foolish to say the game is perfect, of course - but it seems the only drawback really is the simple gameplay, which isn't even a drawback but more the design of the game. If you like games with more depth than run around and shoot then look elsewhere, but for a tense game with simple but effective graphics, the

Atari is used absolutely to the full, and you can do far worse than get hold of *Skeleton*.

So worth buying? Probably, as long as you're an Atari fan. Otherwise download it and see what you think. Retro purists like myself know that unless it's being run on a black box with "Atari" written on (preferably on tacky woodgrain effect) then it's not really running on an Atari, and that's the only way to play Atari games. Normal people, however, will have no problem as long as the game runs and plays well.

Myself, I'm going to look into how to get my Atari to produce stereo sounds... must hear the skeletons approaching better...!

Ian Gledhill



There he is - time for a bit of bone-mashing I think...

Skeleton	
<i>Eric Ball</i>	
Graphics	6
Sound	5
Playability	9
Longevity	8
Overall	8

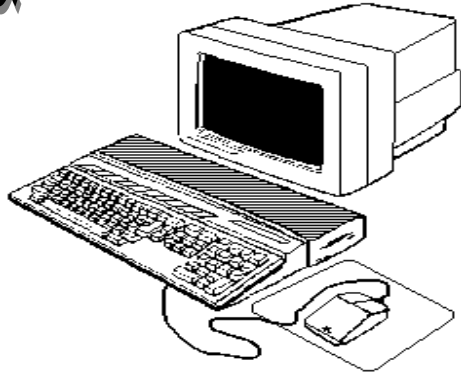
The commercial side of www.atariage.com...

Doing a search on eBay for Atari 2600 reveals a load of old games (usually labeled as "RARE! Combat" or similar!) but you'll also find a number of "homebrew" games such as Skeleton. Most of these are sold by AtariAge, and can be bought from their online shop too.

<http://www.atariage.com/store/index.html> has a large list of Atari products for sale, including games and hardware and even clothing! Many of the games sold can be downloaded as full versions, but of course it's never quite the same on an emulator, so the carts are sold too, usually for about \$25.

Extendos Gold & CD Writer Suite

The Atari Files:



James Alexander

This time around I'm doing an overview of what I think is one of the most useful pieces of software for the Atari ST/TT/Falcon (or clones) computers. Actually its 2 separate packages (the second having 3 programs) that work together.

Extendos Gold is of course the core part of what I'm reviewing. Its not a totally new package but worth mentioning. Back in the early 90's you'll remember CD-Rom drives were starting to appear in a big way. But in the Atari 16 / 32 bit computers there wasnt much in the way of software drivers for CD-Rom drives. Atari produced metados which was never widely know, and a driver for multitos. ICD Inc. produced a driver that worked with their hard disk drivers but that only worked for single speed drives. During 1993 Roger Burrows who runs Anodyne Software (contact info at the end of this article) developed and released Extendos for accessing

cd-roms. This was soon updated to Extendos Pro which added a feature of playing audio cd's on cd-rom drives that supported that mode. Not long after a few companies produced a number of Atari specific cd-roms (usually shareware / pd libraries), those and the more generalized cd-roms containing fonts, clipart and so on quickly opened up a lot of possibilities for Atari users as it did for other computers. In the summer of '96 I managed to get a special on Extendos Pro, a goldstar cd-rom drive (which ran at a blindingly fast 300k/sec) with a couple of Atari shareware cd's. I soon picked up a few clipart and font cd's as well since I'd gotten into using Pagestream and Calamus a fair bit for my college courses. I didn't think it could get any better than that, I could have hundreds of fonts, clipart and new programs without spending days downloading them from the local bbs's. But things did get better. Anodyne software upgraded

Extendos Pro to Extendos Gold. The major change being that Extendos Gold now had support for CD-RW drives. Since I couldnt afford a CD-RW drive when this first came out and I didn't know of any software that could make use of this feature to record a cd-r, I didn't pay much attention. In spring of 2000, Anodyne software released just such a program (actually 3 programs) called CD-Writer Suite (see more on this below). But when I finally did go ahead and get Extendos Gold, I realized it was worth it.

If you're still not convinced that having a cd-rom is beneficial let me change your mind on you. While a number of the early atari specific CD-Roms are no longer available, a number of others have or are coming out recently. Some user groups such as S.P.ACE and TAF are releasing cd-roms of their pd / shareware disk libraries. For the price of 3 or 4 floppies from those pd libraries you can get yourself the entire collection. That by itself makes it cost effective compared to buying floppies from a pd library or spending many hours on the internet and bbs's searching for and downloading all those programs. Not to mention the clipart and font cd-roms available for other computers which can be converted to formats usable on Atari DTP software without too much difficulty. What you'll need to get going is a SCSI (or IDE) cd-rom and a host adaptor for your ST. If you've got a Falcon, TT030, or an Atari clone then you'll already have an external scsi

2. DMA ID Assignment

ACSI/SCSI DMA id assignment		
DMA id	Name	Drive
ACSI 0	_____	- <input type="button" value="Setup"/>
1	_____	- <input type="button" value="Setup"/>
2	_____	- <input type="button" value="Setup"/>
3	_____	- <input type="button" value="Setup"/>
4	_____	- <input type="button" value="Setup"/>
5	_____	- <input type="button" value="Setup"/>
6	_____	- <input type="button" value="Setup"/>
7	_____	- <input type="button" value="Setup"/>
SCSI 0	FUJITSU M2624S-512	- <input type="button" value="Setup"/>
1	_____	- <input type="button" value="Setup"/>
2	_____	0 <input type="button" value="Setup"/>
3	TOSHIBA CD-ROM XM-34	P <input type="button" value="Setup"/>
4	_____	- <input type="button" value="Setup"/>
5	TAH DORS-32160	- <input type="button" value="Setup"/>
6	YAMAHA CD200t	N <input type="button" value="Setup"/>
7	_____	- <input type="button" value="Setup"/>

Estimated memory required: 1144228 kb

interface available. Installation of the CD-Rom drive might be a bit confusing if you've not done it before, but its far from impossible. You should keep the manual for your computer and host adapter handy to help you through it. Installing Extendos Gold itself is quite easy. As you can see from the screenshot of the installation program its menu driven and the manual gives a thorough and easy to understand description of the process. The real fun starts if you've got a CD-R (cd recordable) drive instead of a plain CD-Rom drive. As I mentioned earlier, this package is actually 3 programs, all of which come on a single cd-rom. One note on this, all 3 require extendos gold to be running before they can do anything so be sure to install Extendos Gold first. There is one VERY important detail to go into before you get going with this software. That is the CD-RW

drive you plan on using. You should be careful which drive you choose before buying it. Not all drives are created equal. Some manufacturers drives might have firmware thats not fully compatible with Extendos and CD writer suite. This isn't so much a problem with the software as variations among drives. Before you buy your drive contact Anodyne Systems (contact info is below) and ask about the drive you plan on buying so you can avoid having any problems before you spend your hard earned cash on a drive. Roger from Anodyne will definately

be able to tell you if a perticular drive works well with CD Writer suite or not. I've seen some Plextor and Yamaha drives work quite well (both are high end brands). I'm currently using a Ricoh 7060S CD-RW and it works quite well.

Another technical detail to take into consideration is Jitter. This will only affect your decision if you are producing audio cd's. Since I do a bit of freelance work producing cd's and doing small scale audio cd's of original music for a few musicians this is important to me. How Jitter can affect audio cd's comes in when extracting audio from a cd, jitter is a digital timing error when getting the audio track from a cd. It can result in to a noticable series of clicks and hiss in the audio. Some drives are better at minimizing or eliminating this than others. So if your in doubt, get in touch with anodyne and they'll let you know which drives work better than others.

Those issues aside, lets get into

the software itself. The first program is one I've actually tried the least. That is CDbackup. There isn't a whole lot of other hard drive backup options that work on an Atari system these days. I've seen some shareware programs that will back up to floppies (time consuming) or to removable hard disks such as ones made by Iomega or Syquest (which I prefer to use for primary storage rather than backups). Using CDbackup is a bit better in this respect since it uses the same cd-rw drive that can be used for other purposes. This software is quite easy to use as well, in fact I think its the easiest of the 3. It can create a backup of an entire partition or just the used space on a partition. The best feature is when you restore a partition you can use cdbackup but you dont absolutely have to since the backups it creates appear to TOS/GEM as a normal partition (albeit read only).One piece of advice to try is to use CD-RW discs instead of the regular CD-R variety. Since you'll need to do regular backups the CD-RW variety will save you money in the long run since those are reusable. CD InScriptor is the second program in this package. Its one I use quite a bit more often. This program is geared towards producing standard ISO9660 cd-roms useable on any computer that supports cd-rom drives. It also supports the specialized "Rock Ridge" and "Joliet" formats as well. Using the program is quite easy, if you can use a file selector on your ST your most of the way there, I kid you not, it really isn't difficult.

There is one important note to remember when using this program. That is the capacity (and speed) of your hard disk. You not only have to have all of the files you're going to write to the CD-Rom on your hard disk(s) but also a partition with at least that much space since this program builds up a disk image of the cd before it writes to the CD. So plan on having a partition that can hold 700 megabytes free. Personally I have a 2 gigabyte drive divided into 2 equal sized partitions.

The last program of the 3 is CDWriter itself. This one is the one for creating audio cd's. Installation is as easy as the others and ease use to match. Currently this program WAV files (from PC's), AVR (Atari's audio format), and AIF (Apple Macintosh) formats. However any audio files should be 16 bit samples at 44.1khz sampling rate. That is due to the audio cd specifications rather than a limitation of the program itself. No stone was left unturned in adding features to this program. It includes options for setting gaps between tracks and at the start and end of the cd. A CDextra (for cd+graphics) feature is also included. The order of the tracks can be easily changed (before the cd is written) simply by dragging the track to another position. One feature I like, but haven't taken advantage of yet is the programs ability to convert mp3's to standard audio files for creating an audio cd. This requires a registered version of aniplayer (a shareware graphics & sound player / converter). An unregistered copy of Aniplayer is included on the CD-Rom with CDWriter but you'll need to pay the registration form yourself. One last note about this program, Use CD-R discs instead of CD-RW's. The CD-RW discs don't have the same reflectivity to the lasers used in most audio cd players. Most audio cd players (and some earlier cd-rom drives) can't read CD-RW's because of this.

That pretty much covers this software. Since I still do some music recording work and I'm also starting to distribute some shareware / pd & linux cd-roms this is one set of programs I've been using quite a bit. Anodyne software can be reached at:

Anodyne Software
6 Cobbler Court
Ottawa, Ontario
K1V 0B8

www.anodynesoftware.com
info@anodynesoftware.com

A chat with Michael Battalina

On the 23rd June 2002 Michael Battalina the creator of Amiga Forever from Cloanto dropped by amigazones chat area to have a chat with its members, Harv Laser has given us his permission to print the transcript, so here it goes.

AMIGAZONE TRANSCRIPT - LIVE CHAT WITH MICHAEL OF CLOANTO, CREATOR OF "AMIGA FOREVER"..

This text file is an edited transcript of a 2 hour live chat, which took place in AmigaZone's Live Chat Area, on the evening of Sunday, 23 June, 2002. Our special guest was Michael Battalina, CEO of Cloanto, and creator of the Amigaemulation package: Amiga Forever, now at version five.. Michael's Web Site is <http://www.amigaforever.com>. This was a free-form chat with Michael (who was connecting from his home in Italy, where it was about 4am in the morning, but he was surprisingly coherent anyway ;) ..In the transcript below, Michael is "Mcb" and everyone else is an AmigaZone member. My lines do not start with my name, since I was capturing from my own login and that's how our chat area works - you don't see your own name on the lines that you send, so all of my lines start with a ":" colon.. This entire text file is Copyright 2002, AmigaZone, All Rights Reserved and is provided for the enjoyment of AmigaZone members. By transferring this text to your computer, you are given exclusive right to read it, or to print it out for your own pleasure, but it may NOT be transferred in any way or form, whether electronically, or on paper, to any other Internet Web Sites or FTP sites or Usenet Newsgroups, and it may not be published in whole or in part by any magazines, whether freely-distributed or commercially published, without explicit prior written consent from me. If you are involved in a User Group Newsletter and

wish to publish this transcript, please contact me at hlaser@socal.rr.com for permission.

Enjoy!!..

Harv Laser

AmigaZone Founder And Editor Of Stuff Like This..

[BEGIN EDITED TRANSCRIPT]

-Mcb: Hello!

:Meanwhile, everyone, here's Michael, Mr. Cloanto, maker of Amiga Forever..

:Michael.. everyone..

-Mcb: It's very nice to be here!

:What time is it in Italy? 3am?

-Mcb: 4 AM

:Time to get up :) ..

-Mcb: Harv knows a little secret... :-)

:I do?

-Mcb: Very professional, thank you.

:Well I guess if any of you have any Amiga Forever questions.. go ahead and ask

-Hal: i could use more info on the differences between the winuae versions in AAF5

-Hal: oops AF5

-Mcb: Well, off-topic then, the "secret" was that I had a nap until a few minutes ago. So Harv and I were talking about sofas a few hours ago... :-)

:Okay, you talk and I'll take a nap :) ..

-Hal: harv mentioned the nap

-Djames: What made you decide to write an Amiga emulator? And, how long did it take before you had a good working version?

-Mcb: OK, Amiga Forever 5 includes both the rock-solid older version of WinUAE, as well as the version with Bernd Meyer's JIT code.

-Mcb: I did not write that. To the

contrary, I was one of those Amiga enthusiasts dreonly dreaming of such a possibility, until Bernd Schmidt "delivered".

-Hal: i have two of my own programs that i run on AF. one bangs hardware. works on the older 'compatible' version.

-Mcb: The legal aspect of Amiga Forever was the new thing in the emulation field, which was getting a bit tense.

-Wendell: oh, I didn't know Amiga Forever had a problem too

-Mcb: No, it didn't, but everything else before it, did.

-Wendell: ah

-Moxee: oh

:Is Amiga Forever V5 as far as you plan to take it, or is anything planned for more upgrades yet?

-Mcb: BTW, I am glad to be able to announce, and this is a first, that Cloanto licensjust licensed narrator.device and translator.library.

:Oh. Goodie :) ..

-Rabel1: Does Amiga Forever 5.0 support OS 3.9? Will version 6.0 support OS 4?

-Hal: good move

-Wendell: oh, we get 'say' back!

-Ktdetlie: but Harv, I love the narrator and translator features. you're no fun!

:Well what happens if you have narrator and translator on your older workbench disks and you just copy them into AF5.. will they work?

-Mcb: It was hard to find those people... Very hard... About V5, I think while all versions of Amiga Forever try to make emulation a "one-click" experience, very easy to use, we can still work on that.

-Hal: they do

-Mcb: The videos can be improved, re-encoded as MPEG-2, and with new videos added, weare looking for interesting items.

-Hal: i know i still am confused about configs

:How about including a Web Browser?

-Ktdetlie: So the people who wrote them are paid?

-Mcb: Yes, they will work. But we had to not include them in V1-V5 because we did nothave a license to those. The narrator/translator of Amiga OS 2.x will not workon 1.X.

:I had a HUGE problem getting AWeb II V3.4 into AF5.. mainly because of its lame installer script wanting a real DF0:.. but what I did was install it on my Amiga, burn the whole /dir to a CD, and then copy the whole Dir into AF and it works fine..

-Hal: sneaky

-Wendell: I have some problems even doing that. It will copy some and then crash. :-(

-Mcb: Installers can get tough. There is a new FAQ section at amigaforever.com, completely redesigned, with one or two broken links right now, I shouldn't even be announcing it, anyway, it covers fixing those installers which are a bit too demanding.

-Rabel1: AWeb can be downloaded for free now at <http://aweb.sunsite.dk>

:Well I had an installer script wizard guy try to hack the Aweb II V3.4 patch in staller and even he couldn't get around the real df0: problem...But my solution worked..

-Mcb: I will take a note of this request, and see how it evolves on our site.

So far,the browser was one of the things where it was assumed that the host environment was a bit better.

:And I now have it running happily in AF5..

:I have not tried IBrowse because I do not have MUI in AF5 and I'm not sure I even want it in there :) ..

:Okay Michael.. someone asked if AF5's workbench which is what, 3.1 with some fancy stuff right? If you can upgrade it with one's OS 3.9 CD..

-Mcb: About people getting paid, a previous question, no they are not getting \$1 as with Commodore, which is

why Commodore terminated the contract ;-) It was a very amicable agreement this time.

-Rabel1: Hey Kt! Yep :-)

-Wendell: I have OS 3.9 on mine

:Hi Targ'han.. say hi to Mr. Cloanto..

-Targhan: hi to Mr. Cloanto..

:Michael, Targ'han there is my installer script wizard :) ..

-Targhan: ;-)

-Mcb: Yes, you can install 3.5 and 3.9. As for 4.x, when it's out, we'll see, but don't expect PPC code to run on a real or emulated 68K Amiga.

-Mcb: Hello Targhan

-Hal: :-)

-Ktdetlie: I'm glad they're happy.

-Mcb: That was \$1 per copy, BTW, not \$1 for the license. I wish I had sold something to Commodore for \$1 per copy, and we could be Electronic Arts today, maybe... ;-)

-Targhan: great!

:Okay, another question - mainly regarding OLD games on .adf files..

-Mcb: Yes, but don't forget to edit out our private thread about the sofa...

:There is a site out there, one of many, which has HUNDREDS of .adf files, all, he claims are legal..

:But..

:It seems to take a LOT of experimentation..with AF5's MANY kickstart/workbench/rom/ram/video settings..

:To figure out WHICH setting to use to get any particular game to run properly..

:Is there any easy way or do you just have to keep fiddling until you find the right environment the game wants??..

-Mcb: Yes, there are some very good legal sites, with copy protection removed. Three of them are linked from amigaforever.com: Back to the Roots, Ami Sector One and Borrowed Time.

-Targhan: C=..... now those were the days... little mehdi alibaba and his 40-million thieves..

:Ami Sector One has a gazillion .adf disk

files..yes..

-Targhan: uhm.. Jambo had a lot of links.. are they still around with adf's?

-Ktdetlie: I'm interested in the settings question too

-Mcb: Well, those same sites often provide tips about configurations for the games they offer. It is true that some games require the Amiga they were written for, but luckily you can tweak the emulation to suit that. In general the default 1.3 configuration is

-Mcb: The 1.3 configuration is a good starting point.

:Michael - and once you find a config that works for a particular game, you can save it and give it a name.. but..

:Next question..

:Can you save it WHILE it's running?

-Ktdetlie: I have had trouble with settings for games since I got the picasso II: I mean say you change 20 things, then launch the launcher...And voila, the game works.:Can you THEN save the AF .config file?

-Mcb: Sometimes after booting into 1.3 you need to press F12, "insert" the game ADF, and "reboot" the Amiga from that disk, with Ctrl+Windows=Amiga+Windows=Amiga.

-Paul: ooo, nice how you got all that in one typed line!

-Paul: :)

-Mcb: No, not while it's running. I'll keep a note of that as well, so maybe we can do a follow-up on this.

-Targhan: When I try to boot as a cdtv or cd32, I get a 'corrupt rom image' error :(

-Hal: i vote yes:It would be useful, Michael, to save a .config WHILE the emulator is running, for the above reason..

-Paul: OK, gotta AF5 question, and comment.

-Mcb: Go ahead, Paul. About "while running", I know Toni and others did and are continuing to do a lot of work on "save state" and such. This is an area where I expect major improvements.

:Paul.. just blurt it out..

:Save State.. yes..

-Pault: comment: I recently ran AF5 on my Celery450 overclocked. It came up with 122 xA600, 6.5 or so times A4000/25. <big grin>

-Mcb: About CDTV and CD32, that's a bit more tricky, if you want/need to boot from aCD. AF5 includes for the first time the PAIRS of CDTV and CD32 ROMs, but the emulation support for it is still a bit new.

-Mcb: You know, these things keep amazing me like when I saw the first A1000 with DPaint on it...

-Pault: Question: Only today have I finally gotten a browser to work with it (was a problem with my copying over IB2.2). When I run AWeb from the 3.5 distro, AWeb comes up with "Must be 3.5 or later". Huh?

-Mcb: Or maybe it was Graphicraft, I don't remember...

-Pault: prob Graphicraft!

:Paul, I have AWeb II V3.4 full version installed in AF5 and working fine (told this story earlier)..

-Mcb: I don't know, I have AWeb running fine, I often demo it too, only it may be a different version. I will check and well add this to the follow-up.

:Since AWeb is now open source I wonder if it is now uploadable as a compiled program, or if AmiTriX is still selling it..

-Targhan: Voyager works well under os3.1+

-Pault: But when I got IB finally running, about the time I went to a Web site I got aPC requester from my firewall popping up on the AF screen! Things went downhill very quickly.

-Targhan: I've got the executables for AWebAPL

-Mcb: This is getting very browser-specific, and I confirm that there is both interest on our side, as well as potential. Imagine a region in the browser where you can play a media stream with

support from the host OS, for example.

-Targhan: that is very interesting

-Pault: I can't seem to get (on my Amiga, much less my PC/Amiga) IBrowse to do SSL. Was there a Miami update on 3.5 or 3.9 that has working SSL?

-Targhan: use the pc's shockwave player from within IB.. that would be neat ;-D

-Hal: another useful thing would be to be able to execute a windows program from within AF

-Mcb: That is very possible, if you have MEdia Player installed ;-)) then you can see a movie in an AWeb window, using the latest codecs. Science fiction for now, but it's one of the things I was talking with some programmers about.

-Pault: OK, less specific - Is there something I can do about things getting all mucked up when a Windows requester opens on the AF screen?

-Targhan: very neat

-Targhan: how come AF is more stable than the OS it's sitting on?

-Pault: :))

-Mcb: You can right now execute PC code from within the emulation. That has been in there for some time, only, little interest in using it. As for launching a Windows program, did you mean that it would open as a Window on WB?

-Hal: for me that is open

-Mcb: About those Windows "requesters", if you use an Amiga "screen", that can be an issue, with silly Windows programs not thinking that they should go on the Desktop, and not on the frontmost screen. Amiga programmers always knew about screens...

-Mcb: ... but on Windows, screens were introduced, sort of, with DirectX and games, which is what the emulation uses. I remember ICQ which would, thinking to be smart, move all my Desktop icons only because I had a 640x480 Amiga screen in the back...

-Pault: I am not sure what you mean. I always have WB running with Backdrop checked.

-Mcb: Yes, but Windows "requesters" don't know anything about that when they pop up on top of the emulation screen, where they don't belong.

-Rabel1: I get very slow transfers from Amiga Explorer from my PC to my PPC based Amiga 1200 through my LAN cards. Is this a configuration problem or just software limitation?

-Pault: So there's nothing I can do about that? The Amiga screen stayed fouled up afterwards, I tried Refresh and so on, to fix it had to reboot.

-Mcb: Increase the packet size, it will do miracles.

-Targhan: Ahh! leading up to my question!

-Mcb: Which specific program is that, and what is the resolution and color-depth of both the Desktop and the Amiga frontmost screen?

-Targhan: Well, my next one ;o) Does the direct cable (parallel) have to be custom built?

-Mcb: parallel cable is not supported for driver reasons. serial is standard null-modem, see <http://cloanto.com/kb/3-105.html>

-Pault: Mcb, if you were answering me: PC program was ZoneAlarm Pro, Win 800x600 16 or 32 bit color, or sometimes 1024 res. Amiga was 800x600 uaegfx, I think 16 bit.

-Mcb: Pault, I took a note of this, it may be helpful to set both the Amiga and the Desktop to the same resolution, but what you describe should not introduce problems in the emulation.

-Mcb: About Amiga Explorer speed on Ethernet, if the default packet size on both sides is set to 512, try setting it to 4096. Then increase.

-Mcb: To change it, on Windows, right-click Amiga Computer icon, select Properties. On the Amiga side, change the ToolType setting of AExplorer.

-Pault: Well, sometimes when I have switched AF to the back to move a PC file somewhere, something happens that forces Windows to 800x600 when it was 1024. It only happens with AF running. Usually forces a Windows reboot.

-Targhan: thanks for the url. it's bookmarked.

-Pault: BTW, My A1200 here, I booted and was on (modem) 'Net in the Zone login in 65 seconds. My PC, I can't even keep track of how long it is even with a cable modem, usually 4-5 minutes. :)

-Mcb: There are some PC programs which have problems with multiple screens open at the same time. It is not, in my opinion, an emulation issue. If you had a game, or, say Pinball from MS, running in full screen at a resolution different from the Desktop...

-Mcb: ... it would be similar IMHO.

-Hal: any progress on sound output?

-Mcb: Well, I think I know what you mean, boot takes longer with each Windows version, but now most machines support suspend/resume, or hibernation, and if you have W2K or XP you can run without rebooting for months, as on this machine where I am now.

-Floyd: howdy everyone

-Wendell: hey Floyd

: [note - I am logging this and will edit it and put it in the new uploads probably tomorrow]..

-Pault: F1

-Pault: I mean F!

-Moxee: hi Floyd

-Rabel1: Hey Floyd

-Pault: I have a Win2k machine at work. It is admittedly FAR more stable than anything else I've run from MS but I have managed to crash/foul it up several times....:/

-Mcb: Sound output has been in large part rewritten, now using a third-party library, SDL (Simple DirectMedia Library, by Sam Lantinga). Still, sound is

critical, because if you don't have 50 or 60 frames per second, sound is not smooth.

-Mcb: Hello Floyd.

:Michael.. question.. is sysinfo 3.24 a reliable speed tester inside of AF5? 400 mhz celery here and it says the "amiga" is 6x as fast as an 040. is that reliable? too fast? too slow_

-Hal: is the new stuff included with af5?

-Pault: Mcb, Harv passed along the time recently that the problems I was having with DPaintIV were probably due to its not being RTG aware. What mode can I use? I don't want the emu trying to open a 320x400 interlaced screen (monitor objects to that).

-Mcb: Drivers are the most crucial thing concerning system stability here. If you'd sir display and sound and other system drivers are solid, the system should not crash.

:Paul - 640x400 works but unfortunately only 16 colors..

-Hal: my experience is that the sound is of limited quality. no crashes.

-Mcb: Well, Pault, you can press F12 and run in a window on a Desktop instead of fullscreen, or you can use the emulation settings to force a different screen mode. About SysInfo...

-Pault: Mcb, I can't?!?! I have not seen that work yet. Will have to try it, unfortunately I am not near that machine right now to try it.

-Mcb: ... that is as reliable as it gets I guess. The second time you run something, with JIT enabled, it is faster. And, JIT or no JIT, if it fits in the CPU's cache, it is again faster in a way which can be seen as "incorrect".

-Mcb: Funny thing is, the entire emulation and ROM and OS can fit on some Xeon cachewadays...

:michael so what do YOU benchmark the thing with, if not sysinfo?

:To me, it FEELS much faster than my real 060 Amiga.. but I can't exactly say how much faster..

-Pault: Mcb, is it possible to run it with JIT not automatically started? I get about the same as Harv, 6.5 x A4000, but it does NOT speed up the second time.

-Mcb: I benchmark with compilers, mostly. Say, a large project with SAS/C. Then there is what you perceive, if it feels fast, it is fast. Another benchmark I used on demos is Personal Paint color reduction.

-Pault: Harv, my 50MHz 060 here says only 2.1 x A4000, @40 MIPS.:that sounds right, Paul. an 060 should be a little more than twice as fast as an 040..

-Mcb: If you go to the FAQ section at amigaforever.com, that covers different aspects of speed, both real and perceived, and comparing 68K CPUs too.

-Mcb: Good night!

-Pault: But harv the clock speed is also twice, and the memory perf of the 060 should be much better than an A4K!

:Michael - another question - the deathbed vigil video you have on the CD.. from whom did you license that and is it proprietary or is it distributable?

:IAM went out of business years ago..

-Mcb: The clock speed is a problem, it should be "real time". Try and enabling sound, if it is not enabled. Some variable-speed notebook CPUs were known to create such problems, but now I thought they had been fixed. What version of the emulation is that?

:My AF5 sysinfo screen shot is at <http://www.amigazone.com/webstore/index.html>:err webstore/index.html: this is where we sold 100 copies of AF5 in six weeks.. all gone :) ..

-Mcb: That video is with permission from Dave Haynie, yes. I cannot speak for him though.

-Pault: I cannot tell you at this time which version, I got the AF5 CD from Merlancia and don't think I have patched it.

:Patched what?

-Moxee: There is a patch?

-Mcb: Try and use Software Manager, it will tell you there is a new WinUAE available, and install that. Consider, though, that the software that comes on Amiga Forever may be more stable as a whole..Prv answer also answers the above.

-Hal: is there a recommended procedure for installing new winuae versions

:Speaking of your software manager, I tried it. I let it install a newer WinUAE into my AF5, and after doing so, when I launched it, all it did was crash, so I turned off the software manager. I have no idea what happened but now I'm afraid to turn it on again.

-Paul: Oh, No, didn't mean to imply that. I have not updated it, I assume that any software I get on CD has already been updated somewhere else and that I'm behind on my versions.

-Mcb: WinUAE crashed, or Software Manager? The new WinUAE does not like some settings of the old version, it is documented at winuae.net, that was one reason for not including it in AF yet.

:WinUAE crashed. repeatedly. and refused to run.

:So I just wiped the whole thing and re-installed AF5 from CD again...:And turned Software Manager off..

-Mcb: If you like experimenting, or if you experience a specific problem which you know has been solved, then my advice is to go ahead and try the recent WinUAE, but in general the versions on AF are "good", and I use them every day for productivity.

-Targhan: I have an old laptop win98 machine that really is too slow for running uae, but would it be possible to use Amiga Explorer with it?

:yes, I don't see any compelling reason to upgrade anything.. it works fine for me right off the CD just the way it is..

-Floyd: offtopic Michael, I won an af3 here, along time ago.download version but after I messed up my pc's hard drive,

I went back to get it again and couldn't . would it be possible to get it somehow?

-Mcb: How slow? Pentium/133 would be OK for both Amiga Explorer and even for the emulation, as long as you don't expect it to play games at smoooth 50 or 60 framesper second, but for text editing for example it should be a nice Amiga, especially with JIT.

-Targhan: It's really slow.. P-75

-Mcb: Floyd, I will set this up, let's do it through Harv after the chat.

-Floyd: ok thanks

-Targhan: but with 40M of mem ;o)

:Michael - another question. That toolstrip thing on your workbench.. often I run a program that opens a custom screen.. when I close it and go back to wbench, that tool strip is gone and I have to run it again.. is this a known problem? Or is it supposed to

-Mcb: OK, P-75 is slow... It's a bit better with JIT, but it's slower than the 90 MHz machine Bernd had when writing UAE. Amiga Explorer will work though, and the emulation too (but sssloowwilly) :close itself like that?

-Targhan: Thanks Michael. I'm just looking at trying to get as much amiga stuff to the pc with cdburner as possible.

-Mcb: It's a ToolManager issue explained in the ReadMe.txt (first icon in the dock) I think/hope. TM detects a change of resolution of the public screen, and closes, but is unable to reopen itself automatically, you must press the keyboard shortcuts.

-Paul: harv, yeah! I have had that happen too.

-Targhan: my right windows key closes the AF screen (grrr)

:Michael.. okay.. good. Just checking that I'm not crazy :) ..

:That readme.txt file is really important to read, but unlike you, I don't have the whole thing memorized yet :) ..

-Mcb: It's Ctrl-Tab.

-Targhan: oh, and the toolbar colors are all kinds of wrong.... MWB?

:toolbar colors are fine for me..

-Mcb: I just opened it, I wasn't sure about the shortcut... :-)

-Wendell: the colors are messed up on mine too

:I do not have MWB or MUI installed..

-Targhan: Wendell os 3.9?

-Wendell: but, I switched to AmiDock.

-Wendell: Targhan, yes

-Mcb: If you changed the default settings, that may happen. The Amiga Forever uses aWB screen uses a special 256 color palette where, in addition to the standard WB colors, there are 4 colors used for compatibility with MagicWB, plus more special colors...

-Targhan: Wendell, you got amidock to work?

-Wendell: yup, AmiDock works fine

-Mcb: ... while there is, normally, a pool of unallocated palette entries which should be sufficient to render the icons, but if for some reason you reduced the number of colors, or you allocated more colors for other purposes, then yes, that may happen.

-Moxee: my colors are fine

:Michael - what about no compugraphic fonts included with your installation? Another licencing issue?

-Wendell: ah, I think I did change the palette settings

-Mcb: That's right, but it doesn't only affect Amiga Forever. The CompuGraphic license has expired, and/or was not transferable, I am not sure about this. What we should/should do here is get and convert some equivalent free distribution fonts. A shame we haven

-Mcb: About the fonts, I mean we should have done this earlier.

-Targhan: give up on CGFonts. just download the TTF.library, everyone is happier!

:Well I've been using IntelliFont (included) and making bitmapped versions of the CG Fonts from the OS

3.9 CD.. because AWeb looks like CRAP using regular bitmapped fonts scaled up to <h1> and <h2> sizes..

-Paul: OK, I gotta go eat too. Thanks VERY much Mcb, I will look forward to reviewing this info at my leisure. Great product! When I get it debugged enough, I will take it to work to run DPaint on my clone - still the most intuitive program I know....

-Mcb: My pleasure!

:Hey you can eat anytime. Michael is not here anytime..

-Paul: I'll all, thanks Harv for setting this up!

-Ktdetlie: night Paul

:Unless he wants to wake up at 4am and do this again..

-Targhan: Floyd, yes that's a real 060 optimized executable of AWeb

-Mcb: We'll try to do this more often. I miss this, the shows, etc.

-Hal: good news

:Michael.. that'd be terrific if you could spare a couple hours say every other month or something..

:So How are sales since we blew out 100 copies at 1/2 price?

-Targhan: yes, if our favorite operating environment company will stop giving out free handjobs with their six-packs of B.S. we might have some stuff ;o)

-Mcb: That's more something distributors have a more direct feeling for. But you had a bundle offer, right? I am sure they bought it because of the Amiga Zone subscription, not for the software!

:Umm.. we only got a couple subscriptions out of it.. most folks just bought it outright because of the price..

-Moxee: Gee people are leaving to eat. I just came back from the kitchen with a sandwich.

:Real nerds eat over the keyboard..

:(Like I'm doing ;) ..

-Ktdetlie: and me :^)

-Mcb: How is Gary?

-Hal: hmmm

:which explains why my keyboard looks like it does..

-Targhan: darn skippy. Why do you think they invented the 'pizza rolls'!?!)

-Moxee: I am Harv

-Moxee: I have a safeskin

-Hal: probably sleeping

:Anyone have any more AF5 questions?

:So AF6 is in the works? What's the upgrade \$ going to be?

-Floyd: a rubber for your keyboard?

-Targhan: he should have been here by now, we were on the phone just before I came in

-Targhan: Mcb, do you think there will ever be a chance for the Amiga to have a niche market again?

-Moxee: yes Floyd

-Mcb: Good, please say hello and wish him all the best. I cannot say much about AF6, we are still closer to the release date of AF5 than to a possible AF6 I would say. There will be a maintenance release with a new WinUAE and all the required libraries, plus...

-Mcb: ... the speech files, but it will be a free upgrade.

:Cool.. thanks..

:Oh.. I guess I'm not sure if I'm even registered..

-Targhan: wow!

:I assume folks can go to your site and somewhere punch in their serial number to register if they bought it from Merlancia, yes?

-Moxee: How does one register?

-Mcb: You are putting me in a difficult position here... I fell in love with the Amiga when I saw that Byte cover story, I think that was it. The Amiga is also linked to so many parts of my life and friends and work... About now, I would have to begin by seeing

-Mcb: if we agree about what an "Amiga"

-Targhan: I'm simplistic. If I turn the box on, and it boots to WB—then it's an Amiga ;o)

:well there's the whole is it a box or is it the operating system argument..

-Mcb: is... About it having a chance at a niche market, I don't know, the results of marketing are often unexplainable to me, with interesting surprises I cannot explain!

:And I am sort of tempted to say that it is more the OS than it is the box..

-Mcb: Yes there is a registration form, click the third button in the navigation bar of the HTML documentation.

-Moxee: On your web site?

:Because if I have AF running and the computer hidden behind a curtain and all you can see is a keyboard and a monitor.. then what is it?

-Targhan: I don't remember if I did or not.. I will update mine.

-Mcb: OK, as long as it's the WB we know, I agree. But it can get more difficult than that...

-Targhan: Harv, it's a PC because it cannot handle RDB

-Targhan: that, and at any time windows may blow-up.. well it's a PC because you can't shove an Amiga floppy disk into it..

:but you can shove an Amiga CD into it..

:I dunno.. I can see both sides of it..

-Targhan: but, you have to shut the whole thing down and reboot it to force another CD into it with a different name.

-Mcb: RDB would be handled by the new WinUAE, the Amiga floppy disk, you can try...;-)

:please explain how to hook an Amiga floppy drive to a PC..

-Mcb: You can do a ChangeDisk, like on the old Amiga OS. That will be improved.

-Targhan: that would be cool. if we can disable windows from doing any of its silly crap in the background, it may very well be an Amiga soon ;-)

-Targhan: -b +v

-Mcb: I was being silly, I meant that you can "shove an Amiga floppy disk" into it. But see cloanto.com/kb/3-118.html, it covers all options.

-Targhan: if I could get my linux install to mount affs things would be muchbetter... (grumble)
:I think I am justgoing to have to use Amiga Explorer and hook the two together to suck everything over into AF5..
:Which I haven't done yet..
-Targhan: when AF is running on my 950 celery it seems kind of 'jumpy'. it'll be fast, then dog slow, then fast again... what could cause this (it's a win2k box btw)
-Mcb: If you have the time, copy both the hardfiles (take a note of their geometry details, which you can see with Properties), and the directories/files, so you can be sure that you stored even the lowest-level data, Amiga attributes, etc.
-Mcb: The JIT implementation, I think causes that. It should be less jumpy when idlein newer versions now.
-Targhan: oh ok. I was going to blame win2k (it's alwasy ms's fault)
-Floyd: operator error M\$ wouldn't lie
-Mcb: It's a very CPU intensive process.
-Hal: do tell?
-Mcb: I'll have to leave in about 5 minutes or so.
-Moxee: Thanks for being here.
-Hal: yess
-Targhan: yes
-Floyd: thanks for being here too
-Targhan: I have always been partial to Cloanto products ;-) ever since getting PPaint years ago!
-Mcb: It's certainly my pleasure, and I hope that we will have a chance to meet in person at some event!
-Mcb: Thanks!
-Ktdetlie: I always learn things when you're here. and you're fun because you're not trying to keep from saying anything. :^)
:Michael, thanks a million for doing this tonite, and we can set up another one in a couple months if you want..
-Mcb: Sure.

:Or you can I come to AmiWest in five weeks :) ..
-Targhan: I would like that ;o)
-Mcb: I would LOVE to be able to attend AmiWest... But you know that when I am aroundI may ring your bell...
:I don't have a bell, you'll have to knock :) ..
-Mcb: I know... :-)
-Floyd: and a smooth road.:-)
-Targhan: haha
-Hal: yup
:I have a photo of michael visiting me, what, a year ago? two? lemme see if I have it online..
-Ktdetlie: oh is amiwest that soon?
-Targhan: munching on on cantelope ;o)
mmmm:<http://www.amigazone.com/image/s/cloantodude.jpg>
-Ktdetlie: you do Harv, I just saw it a few days ago
:Hmm.. november 1999, almost three years ago..
-Mcb: I had more hair then... :)
-Ktdetlie: Moxee <pout>
-Moxee: People change in 3 years.
:I guess I'm about the same ugly fat slob..
-Mcb: I think I am getting a bit late now, plus you made me hungry ;-), so I would like to thank you all for this nice chat, and I hope that we can repeat this soon!
-Hal: great
:Well thanks again, Michael.. it was our pleasure, and lots of very useful information.. good night/morning to you :) ..
-Moxee: Mike Does your web site work best for Amiga or MS?
:[applause sign]..
-Hal: clap clap etc
-Mcb: should work best with w3.org!
-Targhan: ;o) thanks
-Ktdetlie: Thanks Michael
-Moxee: Good, and thanks again for being here.
-Mcb: bye
Mcb has just left the chat room.

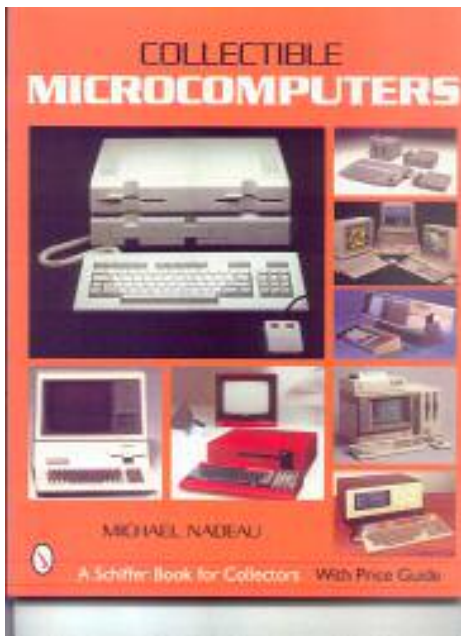
[END OF EDITED TRANSCRIPT]

Collectible Microcomputers

This is the title of Michael Nadeaus` s book on vintage computer collecting, but is it any good? Jorge Canelhas will give it a read and tell you what he thinks.

A couple of weeks ago I received a mail from Michael telling me about his new book. Obviously I got excited about it, as it's not everyday that new literature appears covering my favourite subject! Immediately I ordered a copy, and a few days later a big envelope landed in my mailbox. Could it be...? YES! It was, it was the book. I turned the ignore mode on my wifes conversation and started leafing through the book- nice paper, so-so cover... I could make a statement about the chosen colour for the cover but its unethical to discuss tastes...!

The book is divided into preface, introduction, and the computer list (actually most of the book!). In the introduction, Michael tells us some techniques on finding and evaluating vintage hardware. The most interesting part, however, is the huge computer listing. The list is ordered by manufacturer, then by machine; for each manufacturer you get a small intruduction on the brand and then the listing of machines- and there are many, many models for you to explore. It's in the main listing that I found the only drawbacks of the book- first, too Americanized! OK, Michael is American so what can you expect, but still there is some stuff missing despite there being a lot that you are unlikely to even hear of in Europe (which is actually a good part). In the models description I also found a price range that I believe is a bit on the low side. Take for example the ZX80 that has the top value of 200 USD - that's rather low in my experience. Not that you can't find cheaper ones, but there are plenty of higher priced ones! One other small thing is that all the book except for the cover is in black and white (well, actually



greyscale). The book costs 30 USD - not cheap but not expensive for what you get.

All in all, Collecting Microcomputers is a nice book, well written (though American market focused) book, and well worth the money it costs. Descriptions could be a little longer, but that would take seven 500 page tomes to get done!

You can buy this book from:
<http://www.classictechpub.com>

editor@classictechpub.com

or

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Jorge Canelhas

It's not often that a new game comes out commercially for a console over 10 years old, but even since the demise of SNK, the renowned Metal Slug series received its latest update in 2002. Ian Gledhill takes a look at the new sequel - the fifth in the series - and finds out if it lives up to

When PlayMore took the Metal Slug license from SNK they took on more than a name - they bought a legacy. Over the last decade the Metal Slug series has remained popular with gamers, because of its purebred shooter gamestyle, coupled with superb graphics and legendary animation.

Metal Slug 4 is the fifth incarnation

around, if it moves shoot it. If it doesn't, try shooting it anyway - good old fashioned gameplay in other words! What makes the games stand out, however, is the way the gameplay reacts to the cartoon-styled graphics. None of the standard "baddy runs at you in 16 frames of animation and disappears in a puff of pixels" -



Metal Slug 4



of the series (yes *fifth!*), coming after

Metal Slug 1 and 2, Metal Slug X (which is MS2 but with twiddly bits really), and Metal Slug 3, which was released some years back. In each of these games the gameplay has remained the same: run

the 576 megabits of information on the cartridge are put to good use (note that it's actually *smaller* than Metal Slug 3, which weighs in at 708 Megabits!) and the enemy soldiers react in many

different ways to your character. Die horribly, for instance, and they'll have a good old belly-laugh at your expense... until you get resurrected (if you have any lives left) at which point they jump in shock and usually run in terror! Close combat is also done with wonderful detail - you don't die by hitting the bad guys unless they attack you by clubbing you with the butt of the gun. No instant death when pixels collide here.

Part of the beauty of Metal Slug and the entire series is the satisfaction to be gained



Another day at the office for the Metal Slug crew...

not just by shooting men running at you, but also by blowing them out of their tanks, pinching the tank, and going on a flame-throwing missile firing extravaganza through the level. Always fun. This is in fact how the series finds

armament of this incarnation is more suited to the setting. The vehicles that are there are - naturally - beautifully animated and superbly drawn, in a very cartoony style, while being amazingly detailed. They're also of course a lot of fun!



Now that's what I call an end-of-level bad guy... and that's only one third of it.

its name - the Metal Slug is a vehicle - one of many in fact.

So what does *MS4* offer in preference to the others in the series? Well... not a lot really. It's very much "more of the same", which is a negative way of saying "if it ain't broke don't fix it!". In this case definitely the latter is more appropriate - it's as close to a perfect example of the genre as I've ever seen. There are the usual amount of vehicles to jump into, although perhaps a little more limited than in previous offerings. Having said that, I've only played the first two levels as it gets rather hard after that, so there may be other things. Certainly by this stage in *MS3*, however, I'd had a nice submarine adventure and a trip in a weird crab robot beastie - not so in *MS4*. This game has a rather more real-world feel to it - gone are the crabs of *MS3*, replaced by just humans and guns, so it seems that the more tank-based

One other thing about the graphics - they're *huge*. Not the little guys, of course, they're all the size you'd expect, but the machines and particularly the end-of-level baddies are verging from large to humungous. The NeoGeo hardware was always designed to throw a *lot* of sprites around the screen, and this enabled the programmers to code bad guys like at the end of level 1 - a Zeppelin a full 3 screens wide. Large sprites are no stranger to the *MS* series, of course - it's part of the tradition.

What about other facets of the game, though? Does it sound good? Certainly does - lots of screams and bullets and war-like noises, accompanied by a military-sounding backing track. Again, PlayMore have kept up the SNK quality. There's not much more to say about this, though - it's very much a background to the rest of the game, but the fact that it measures up at all is high praise.

Perhaps parts of this review will give the reader the impression it's like so many other NeoGeo games - i.e. lots of wonderful SNK graphics, and no gameplay. In this case, though, like the previous *MS* games, the strength isn't in the graphics, but the gameplay, which is aided so well by the detailed graphics. In other words, they're not fantastic graphics for the sake of fantastic graphics like so many PC games these days - they're there to aid the playability,

that's all. And it works superbly. As soon as the game starts you're in full game-playing mode, and it oozes quality right from the outset. It's impossible to describe how the gameplay works so well - it just *does*. It helps that it's such a simple, tried and tested formula, but the execution of it is where it shines.

Now of course we come to the only minor hurdle of this - and for that matter all - Neo Geo games. The price. \$300 will buy you a lot of things, even today. Surely that's a daft amount for a game? Well.. kind of. Yes, it's a lot but given the production run of 300 English and 300 Japanese versions (which are identical except for the packaging), and the size of the cartridge, you can see where the price comes from. So is it worth it? In my humble opinion, yes. No, I'm not barmy - hear me out! The point is that while \$300 *is* too much for a game, the heritage of the game, coupled with the rarity means that the value will stay about the same, maybe even go up. Copies of all the *MS* games go on eBay in the hundreds of dollars - *MS1* usually fetches over \$1000. Some people



Oh yes... you don't get this kind of vehicle at your local Ford dealer. Powerful gun, missile launcher - and it even jumps! coooolllll...

reckon that *MS4* is weaker than the others but it still commands good prices on eBay, and that's very unlikely to change. So it's almost an investment - and a very fun one at that!

Ian Gledhill

Metal Slug 4	
<i>PlayMore</i>	Overall
Graphics	
Sound	
Playability	10
Longevity	8

A little about the NeoGeo...

The NeoGeo has been declared recently the "most collectable" console by Edge magazine - and with good reason. It has a good range of games (ranging, in fact, from superb to absolutely awful!) but all games command a good resale value. It's almost undisputed as the king of the beat-em-up genre, and probably the shoot-em-up too.

If you're looking for a NeoGeo console be aware there are two types, the MVS and the AES system. The AES system is the home version, like any other console - the MVS is a Jamma PCB used in arcades, but beware the two types are *not* compatible without adaptors, which don't always work. The MVS games come in cardboard boxes, the AES ones in posh retail boxes, so if you like games to look nice, the AES is what you need. However, AES games can be *far* more expensive (> \$1000 for a Metal Slug AES, \$30 for an MVS version). Also be aware of the NeoGeo CD consoles - they have great music (CD music!) but also massive loading times on their single speed CD-ROMs...

Cool Places to Visit on the web...

Hi, in this issue , instead of the typical retro related sites we decided to give you an alternative look at cool places, so this month no RETRO sites in here.



WWW.ROCK103.COM

Ever wondered where those funny videos that all your colleagues send you come from ? Well a good part must come from this place, this site is packed with funny stuff, from videos, pictures, babes, if its funny they must have it. A must !!!

WWW.TOP500.ORG

So your PC is fast, how fast ? One thing is for sure, these babes will kick your Home PCs ass flat in the grass, check here the fastest SuperComputers in the world, guaranteed to make your mouth open for quite a while.



Opinion Poll

As a new project, we need all feedback possible, if you fill out and send us this form, you are already contributing a lot to make this you favorite magazine.

Thanks

The Retro Review Crew.

Please Draw a circle around the number that you think best describes what you expect from Retro Review, or the item that better expresses your opinion.

- 1) What do you think of the Magazine Format ?
 - 1 - Too Small.
 - 2 - Its OK.
 - 3 - I dont really care about the format.
 - 4 - Too Large.
- 2) What do you think about the articles.
 - 1 - Interesting.
 - 2 - Not Interesting.
 - 3 - Neither good or bad.
- 3) What is, in general your first impression of the magazine ?
 - 1 - Im Happy with it.
 - 2 - Nor Happy or Sad.
 - 3 - Im disapointed.
- 4) Would you recomend it to a friend ?
 - 1- NO WAY.
 - 2 - Maybe i would.
 - 3 - Definatly.
- 5) What kind of Retro Machinery would you like to see covered in the near future ?
 - 1 - Arcade.
 - 2 - Computers.
 - 3 - Consoles.

Thank you for your time, please reap of this leaf and send it to us, by mail to :

Jorge Canelhas
Apartado 3115
Miguel Bombarda
2745 QUELUZ
PORTUGAL

or just copy the question number and your awnser and mail it to:

ideas@retroreview.com

Feel free to write down any ideas and comments.

Auction Watch

Hi all, so whats new? Not much really, the market has been low recently: prices clearly reflect that. That's good for us collectors but for those of us who also sell it could be better! Notice some underrated computers, even of the not that rare category, the Commodore 128D is a flagrant example of an underrated dude! Ataris (especially the early 400/800 models) are also underrated. On the other hand, the almighty and hyped ZX80 has reached values never seen before, proving that fashion is a better seller than



Ouch, these dudes really reach high prices

the actual quantity produced. This fella actually beat a Commodore MAX that went for 410 GBP and the 2 Exidy Sorceres that went for little more than 400. Another noticeable thing is the price of big box amigas- two things interfere with their prices: the size (they are awful to send anywhere!), and the recent release of Amiga 1. That has made a lot of people sell their current systems to buy the Amiga1 (wrong move in our humble opinion - Amiga 1 won't play Turrigan!)

The more eagle-eyed reader will notice that there's not too much changed since last month in the table! That's because it takes ages and we've been unbelievably low on time since last issue. However, the data's still valid! One machine which stuck in my mind which didn't sell was a Commodore 232. Yup, a genuine CBM 232 prototype, serial number 7!

Unfortunately, the seller wanted rather more than I was able to give him - he wanted a reserve of \$2750! As it didn't reach the price it wasn't sold.. maybe some day it'll be worth that, but given it's exactly the same as a CBM +4 without the programs and less RAM, it's not that special.

Other than that it's been the usual fare - plenty of ZX80s, and many other LOOK R@RE items!

All prices are in GBP

Computer / Console	Low	Av.	High	#
Acetronic				
Acetronic MPU 1000	2.50	7.17	10.50	3
Acorn				
Acorn A3000	5.00	12.00	21.00	11
Acorn A3010	5.00	29.15	58.90	6
Acorn A3020	3.20	15.35	41.00	14
Acorn A310	20.10	20.10	20.10	1
Acorn A4000	10.50	16.87	25.00	4
Acorn A410	21.00	21.00	21.00	1
Acorn A7000+	71.00	71.00	71.00	1
Acorn Atom	124.00	124.00	124.00	1
Acorn BBC B	5.19	24.15	37.00	14
Acorn BBC B+	102.00	102.00	102.00	1
Acorn BBC Master	5.50	46.49	84.00	5
Acorn BBC Master Compact	23.00	23.00	23.00	1
Acorn Electron	3.19	15.09	52.00	18
Acorn_A5000	41.00	41.00	41.00	1
Acorn_A7000	55.00	55.00	55.00	1
Amstrad				
Amstrad 464 +	15.00	15.00	15.00	1
Amstrad 6128 +	21.00	30.50	40.00	2
Amstrad CPC 464	1.70	12.23	17.00	11
Amstrad CPC 6128	6.50	17.23	33.39	6
Amstrad CPC 664	19.35	35.85	52.36	2
Amstrad GX-4000	5.00	16.50	41.00	15
Amstrad PCW 8256	18.86	18.86	18.86	1
Amstrad PCW9512	5.26	5.26	5.26	1
Amstrad PPC512	6.47	10.73	15.00	2
Apple				
Apple Macintosh	42.70	137.04	213.00	4
Apple Macintosh 512K	12.50	20.81	29.12	2
Apple Macintosh Classic	7.35	27.83	51.00	4
Apple Macintosh Portable	35.52	35.52	35.52	1
Apple Macintosh Portable 4/40	142.00	142.00	142.00	1
Apple Macintosh SE	11.00	19.67	27.00	3
Apple][Europlus	41.00	41.00	41.00	1
Apple][+	36.40	36.75	36.40	2
Apple][GS	18.50	46.24	73.98	2
Apple][c	7.00	39.73	82.00	5
Apple][c+	40.50	40.50	40.50	1
Apple][e Platinum	60.45	60.45	60.45	1
Atari				
Atari 1040STE	25.67	68.77	78.75	4
Atari 1040STF	10.50	31.28	71.75	7
Atari 1040STFM	10.85	56.42	102.00	2
Atari 1200XL	59.00	64.00	69.00	2
Atari 130XE	11.50	23.81	42.70	7

Atari 2600 (6 switcher)	10.50	33.57	72.00	12
Atari 2600 (Darth Vader)	20.00	20.00	20.00	1
Atari 2600 Jr.	3.00	16.98	34.01	11
Atari 400	8.41	8.41	8.41	1
Atari 520ST	14.21	15.60	17.00	2
Atari 520STFM	11.00	15.83	23.00	6
Atari 520STM	26.00	26.00	26.00	1
Atari 600XL	5.71	13.35	21.00	2
Atari 65XE	5.00	15.58	40.10	10
Atari 800	22.40	64.64	160.00	9
Atari 800XL	10.50	23.43	60.00	16
Atari Jaguar	24.00	24.00	24.00	1
Atari MegaST 2	18.50	14.77	18.50	2
Atari Portfolio	15.00	15.00	15.00	1
Atari XEGS	12.50	15.75	12.50	2
Bandai				
Bandai Pippin	79.00	79.00	79.00	1
CBS				
CBS ColecoVision	16.00	18.75	21.50	2
CGL				
CGL_M5	132.00	132.00	132.00	1
Coleco				
Coleco Adam	14.00	20.88	37.31	4
Commodore				
Commodore +4	2.27	18.93	56.04	26
Commodore 128	9.00	31.17	77.00	12
Commodore 128D	12.00	50.07	102.00	5
Commodore 16	8.50	16.89	32.00	10
Commodore 64	3.00	19.53	76.00	44
Commodore 64C	3.00	15.23	41.69	42
Commodore Amiga 1000	18.00	37.71	18.00	4
Commodore Amiga 1200	15.00	34.97	104.65	49
Commodore Amiga 1500	51.00	51.00	51.00	1
Commodore Amiga 2000	28.70	46.89	73.50	7
Commodore Amiga 3000	106.76	124.25	141.74	2
Commodore Amiga 3000T	126.19	126.19	126.19	1
Commodore Amiga 3000UX	200.00	200.00	200.00	1
Commodore Amiga 4000/030	152.00	185.99	215.99	3
Commodore Amiga 4000/040	148.94	238.89	308.00	5
Commodore Amiga 500	5.00	16.95	37.72	52
Commodore Amiga 500+	5.00	17.36	28.00	15
Commodore Amiga 600	10.00	23.87	52.50	30
Commodore Amiga CD32	26.00	30.43	40.00	7
Commodore Amiga_2500	30.79	30.79	30.79	1
Commodore B128-80	76.02	76.02	76.02	1
Commodore CBM 4032	50.00	50.00	50.00	1
Commodore CBM 8032	16.36	53.51	72.09	3
Commodore CDTV	49.48	50.16	51.00	3
Commodore Educator 64	159.26	159.26	159.26	1

Commodore KIM-1	97.00	159.63	195.00	3
Commodore PET 2001-8	211.50	275.11	211.50	2
Commodore SX-64	36.40	102.94	211.00	12
Commodore SuperPET 9000	136.00	136.00	136.00	1
Commodore VIC-20	5.25	19.48	66.00	30
Commodore_64GS	155.00	155.00	155.00	1
Commodore_MAX	410.00	410.00	410.00	1
Commtron				
Commtron Video Brain	149.61	149.61	149.61	1
Dick Smith				
Dick Smith System 80	80.12	80.12	80.12	1
Dick Smith VZ200	15.09	15.09	15.09	1
Dick Smith VZ300	26.25	26.25	26.25	1
Digital Rainbow				
Digital Rainbow 100	34.97	34.97	34.97	1
Dragon Data				
Dragon 32	21.00	32.15	62.00	6
Dragon 64	138.00	138.00	138.00	1
EMS				
EMS M68K	46.00	46.00	46.00	1
EPSON				
Epson HX-20	14.00	23.45	28.00	8
Epson PX-8	14.35	20.57	26.00	2
Epson QX-10	10.50	10.50	10.50	1
Eurocom				
Eurocom-1	69.00	69.00	69.00	1
Exidy				
Exidy Sorcerer	340.00	373.00	406.00	2
Franklin				
Franklin_Ace_2200	13.96	13.96	13.96	1
Goldstar				
Goldstar 3D0	31.80	31.80	31.80	1
Grandatan				
Grandstand Adman	21.00	23.50	26.00	2
Hanimex				
Hanimex TVG070C	13.23	13.23	13.23	1
IB				
IBM PC jr	7.00	14.22	25.20	3
ICL				
ICL OPD	200.00	200.00	200.00	1
JVC				
JVC HC-7GB	38.00	38.00	38.00	1
-Sega-				
John Sands Sega SC-3000H	24.83	39.57	58.60	3
Jupiter Contab				
Jupiter_Ace	207.00	207.00	207.00	1
Kay Pro				
KayPro 1	28.70	28.70	28.70	1
KayPro 10	46.01	109.83	178.50	3

KayPro 2	18.00	47.90	106.05	5
KayPro 4	8.05	18.02	28.00	2
Vectrex				
MB Vectrex	62.00	94.46	128.50	7
Magnavox				
Magnavox Odyssey 2	3.49	13.09	28.70	3
Mattel				
Mattel Aquarius	4.88	17.97	27.99	8
Mattel Intellivision	8.00	25.25	40.00	4
Memotech				
Memotech MTX 500	51.00	51.00	51.00	1
Mitsubishi				
Mitsubishi_ML-F80	36.00	36.00	36.00	1
NEC				
NEC PC FX	82.00	82.00	82.00	1
NEC PC8201	31.62	31.62	31.62	1
Nintendo				
Nintendo Famicom	28.21	28.21	28.21	1
Nintendo Gameboy	14.26	14.26	14.26	1
Nintendo NES	10.50	24.69	46.00	5
Nintendo SNES	11.00	37.61	76.44	4
Nintendo VirtualBoy	44.27	62.13	80.00	2
Olivetti				
Olivetti Prodest PC128	15.50	15.50	15.50	1
Hektor				
Open University Hektor II	52.00	52.00	52.00	1
ORIC				
Oric 1	31.00	37.54	41.00	5
Oric Atmos	21.00	87.25	205.00	4
Orizon				
Orizon-Micro	82.25	82.25	82.25	1
Osborne				
Osborne 1	36.40	83.20	133.00	3
Osborne OCC 2	145.25	145.25	145.25	1
PC ENGINE				
PC Engine Core Grafx	67.50	72.61	77.73	2
PC Engine Turbo Grafx	75.00	75.00	75.00	1
PC Engine Turbo Grafx Express	110.00	110.00	110.00	1
Panasonic				
Panasonic 3D0 FZ-1	51.00	59.00	67.00	2
Panasonic 3D0 FZ-10	31.00	31.00	31.00	1
Panasonic CF2700	35.00	35.00	35.00	1
Panasonic RL-H1400	11.21	11.21	11.21	1
Philips				
Philips CDi 205	28.00	28.00	28.00	1
Philips CDi 210	30.69	46.34	62.00	2
Philips CDi 220	21.01	40.75	60.00	4
Philips CDi 450	28.00	42.00	56.00	2
Philips Videopac G7000	11.00	17.39	30.00	5

Pioneer				
Pioneer PX-7	41.00	41.00	41.00	1
Psion				
Psion Workabout	72.00	72.00	72.00	1
Radofinj				
Radofin Aquarius	6.97	20.63	34.29	2
Robik				
Robik	48.96	48.96	48.97	2
SNK				
SNK NeoGeo CD	102.00	102.00	102.00	1
SEGA				
Sega Game Gear	13.10	13.10	13.10	1
Sega Master System	20.00	24.75	32.00	4
Sega Master System II	9.51	15.25	21.00	2
Sega MegaDrive II	16.00	16.00	16.00	1
Sega Saturn	17.03	18.84	20.66	2
Sega_3000	15.04	15.04	15.04	1
Sega_Megadrive	6.50	6.50	6.50	1
Sekon				
Sekon	72.00	72.00	72.00	1
Sharp				
Sharp MZ-700	16.00	52.10	82.50	5
Sharp PC-1500	7.00	28.83	42.50	4
Sharp PC-1501	20.00	20.00	20.00	1
Sinclair				
Sinclair QL	21.00	55.83	102.00	6
Sinclair Spectrum +	9.00	22.38	74.00	39
Sinclair Spectrum +2	5.50	25.98	62.00	37
Sinclair Spectrum +2A	3.20	20.49	39.00	14
Sinclair Spectrum +3	8.00	33.29	75.00	13
Sinclair Spectrum 128K	35.00	60.27	102.00	11
Sinclair Spectrum 16K	21.00	38.33	52.00	3
Sinclair Spectrum 48K	4.00	30.25	88.00	73
Sinclair Z88	16.00	30.70	51.00	7
Sinclair ZX80	55.48	200.36	425.15	14
Sinclair ZX81	2.50	37.89	82.00	39
Sony				
Sony Hit-Bit HB75B	22.00	30.00	39.00	3
Spectravideo				
Spectravideo SVI 728	56.41	56.41	56.41	1
Tandy				
Tandy 1000 HX	7.35	7.35	7.35	1
Tandy 102	19.01	34.95	60.00	15
Tandy 600	34.14	34.14	34.14	1
Tandy TRS-80 Color Computer	8.02	20.97	46.94	11
Tandy TRS-80 Color Computer 2	6.99	15.38	31.51	16
Tandy TRS-80 Color Computer 3	10.85	24.78	53.20	8
Tandy TRS-80 MC-10	10.85	17.01	29.40	4
Tandy TRS-80 Model 100	14.00	39.25	89.25	21

Tandy TRS-80 Model 4	18.20	18.20	18.20	1
Tandy TRS-80 Model 4D	98.00	98.00	98.00	1
Tandy TRS-80 Model 4P	7.42	36.40	71.75	6
Tandy TRS-80 Model I	35.70	53.72	35.70	2
Tandy TRS-80 Model I (w/keypad)	18.20	95.43	214.20	3
Tandy TRS-80 Model II	73.81	73.81	73.81	1
Tandy TRS-80 Model III	6.93	23.76	36.17	7
Tandy TRS-80 PC2	22.75	50.64	92.76	3
Tandy TRS-80 PC4	23.10	57.55	92.00	2
Tandy TRS-80 Pocket Computer	15.67	23.69	36.40	5
Tandy_1000_SX	86.45	86.45	86.45	1
Tandy_200	23.77	23.77	23.77	1
Tandy_TRS-80_Model_16	42.00	42.00	42.00	1
Tatung				
Tatung Einstein	60.00	60.00	60.00	1
Texas				
Texas Instruments TI CC-40	43.00	43.00	43.00	1
Texas Instruments TI99/4	7.36	70.68	134.00	2
Texas Instruments TI99/4A	3.85	18.95	47.00	30
Texas Instruments TI99/4A (Mk. II)	1.40	12.92	37.50	12
Thomson				
Thomson MO6	24.59	24.59	24.59	1
Thomson TO9	21.00	21.00	21.00	1
Timex				
Timex Computer 2048	71.98	106.86	141.75	2
Timex Sinclair 2068	17.55	31.37	53.00	4
Timex Sinclair TS1000	2.80	19.64	80.15	33
Timex Sinclair TS1500	25.20	37.79	53.20	3
Tomy				
Tomy Tutor	72.50	72.50	72.50	1
Toshiba				
Toshiba HX-10	10.00	22.85	41.00	10
Unipolbrit				
Unipolbrit 2068	156.00	156.00	156.00	1
VTech				
VTech Laser 128	6.99	17.84	28.70	2
VTech Laser 50	10.49	10.49	10.49	1
Yamaha				
Yamaha CX5M	22.00	23.60	25.20	

ON RETRO REVIEW #5

How media has changed

What media do you use the most ? CD-ROM ? DVD ? Well you should consider yourself lucky! In this article Retro Review will take you through time to see what kind of media was used in the glory days of microcomputing! Just don't erase your disk...

Amiga 1

The Amiga one has arrived, finally, is it really worth it ? We'll check it out for you!!!

Webbing the Amiga Part 4

The final part of this series of articles.

Emulator Writing and much much more...

SPECIAL ANNOUNCEMENT

Hi, has you should have noticed, Retro Review is late again! Both me (Jorge) and Ian have been really busy, but we prefer to delay and keep the article quality high than to realease some piece of junk just to stay in schedule.

Due to this overload we've decided to make Retro Review Trimonthly instead of bimonthly- at least until our workload subsided - but please note that subscribers will still receive the mags they paid for - no alteration in that! So rest assured it's just to keep the schedule more up to date.

Sorry for any inconvenience!

Jorge/Ian